

EDITORIAL

Analyzing Buying

THE recent increase in the number of automobile sales made throughout the country is not entirely attributed to the price cuts and the bringing out of new models by some executive in the industry.

Those opposed to this view contend that the recent buying is nothing more than delayed buying, buying which should have been done two months ago.

This latter group expresses itself this way: The motoring public, especially those who were most likely to buy passenger cars, knew two months ago that new models would be on the market before long. They preferred to wait until the time when the new models put in their appearance. Then they bought. This buying could have taken place two months previously. Now it is easy for salesmen to say that the price reduction and the bringing out of the new models has caused the increase.

In answer to these arguments, it may be pointed out however, that the sales for May and June were above those of past years and that the recent increases are simply an answer of the public as regards the bargains the various manufacturers offered. As for the people not buying until the new models came out that was true only to a small extent as this tendency was no more noticeable this year than in the past.

Selling Parts Abroad

THE business of exporting parts and accessories is getting to the point where some really serious study of methods is being made by a relatively large number of American makers. And it is rapidly becoming apparent that foreign selling of equipment and parts isn't all beer and skittles. That a good market exists is certain, but that every parts maker can profitably export or that parts business will expand as rapidly as car business is not nearly so obvious.

M. L. Hemingway, general manager, Motor & Accessory Manufacturers Association, returning from a study of marketing conditions in Europe last week, stated his belief that "the outlook for the manufacturers of parts and accessories (in foreign markets) is not as bright as that of the car builders for several reasons." The difficulties, he points out, are that foreign competition is much stronger on parts and accessories than on complete vehicles; the great variety of models running in foreign fields; and the heavy original accessory equipment carried by most American cars sold abroad.

Added to these conditions, is the increasingly large number of American makers seeking distribution in

certain nearby markets and the confusion of discounts and distribution practices which make marketing a problem calling for the highest degree of merchandising skill and competent study.

There is unquestionably a large and growing market for American-built parts and accessories in the world market. Good profits are available from export sales, but they will accrue only to those who approach their foreign sales effort with intelligence and consistent activity.

"Puff" Publicity

IF the newspapers give their readers automobile pages filled with "puff" publicity, instead of news which is as carefully selected and prepared as that in other sections of the paper, who is to blame? It is frequently said that the automobile press agents and advertising men do not furnish any other kind of copy. We believe this is largely true. But, on the other hand, just what percentage of the newspapers make any very insistent demand for better material than they have been getting—and printing—in the past?

We know an automobile advertising manager who recently wrote to the newspapers all over the country telling them it would be his policy in the future to send out nothing unless it had legitimate news value. He would not ask the papers to print stories that contained nothing more interesting than the name of his company. Did he get an enthusiastic response? Yes. But most of the replies came from men who were more interested in advertising than in news, and nearly all of these, after telling him what a grand idea it was, promised to take care of anything he saw fit to send along. The letters gave the impression that the newspaper men were not nearly so particular as the automobile man about the quality of the publicity that was offered.

The chief fault lies in the fact that only a very few newspapers have as yet divorced the automobile advertising and editorial departments. In too many instances the "automobile editor" is not an editor at all, but an advertising salesman. The advertising comes first with him because that is where he finds his bread and butter.

As long as 95 per cent of the newspapers conduct their automobile departments in this manner, and are quite ready to print any reading matter that is sent in if it is tied up with paid lineage, the car manufacturer cannot be too severely censured for following the line of least resistance and approving "slushy" copy from his publicity staff. He knows the newspapers will print at least a portion of it—as long as they continue to get his advertising.

Our Industry Today

Trend of Manufacturing Output Points Downward, Although Some Factories Continue Heavy Production

NEW YORK, Aug. 27—While production in several of the automobile factories in the greater Detroit and other manufacturing areas is still at nearly full capacity, the trend of manufacturing output is pointing down.

Perhaps the best indication of this is the fact that orders for the various makes of passenger cars are not as easy to secure now as they have been in the past. This is true not only of those makes which have enjoyed normal outputs but also of those makes which have done record business.

The output now is being used to catch up with the orders that have been on the books for some time. Some companies are making remarkable progress in this direction and have made great inroads into their unfilled orders. Those companies that have been doing a normal business are letting their orders control their production.

When the time arrives when the unfilled orders are no longer on the books, it is almost a foregone conclusion that the output will take a big drop and will continue on its way down until the annual rush starts again in the spring, because it is regarded as certain that the different manufacturers will control their output by the demands placed on them by their dealers and branches.

Production Possibilities

While it is only a matter of speculation, yet the coming months may see production drop to an unusually low figure for reasons mentioned above. And then again it may not, for the manufacturers wishing to maintain a sales line devoid of radical ups and downs may govern their production accordingly. As yet it is too early to predict just what course will be followed, except that production will drop.

A lull has developed in the wane of price-cutting, virtually all the important factors in the car business having reduced their lists. This will afford an opportunity for a stabilization of sales at the new price levels.

Ford's Carolina Plant to Resume Operation

Charlotte, N. C., Aug. 26—The Ford Motor Company's assembly plant here, which has been closed since August 1, will resume full-time operations about September 1, was definitely stated by officials of the company today. This plant employs between 1,000 and 1,100 skilled mechanics when working at capacity.

The date when full-time operations will be resumed depends on receipt of quantity shipments of materials for the new model Ford cars.

Brill, Hall, Fageol Discussing Merger

Report Conferences in Oakland May Lead to Strong Bus Combination

OAKLAND, CAL., Aug. 27—Merger of the Fageol Motors Co. of Oakland and Hall-Scott Motors, Inc., of Berkeley, with the J. G. Brill Co. of Philadelphia is being attempted here, with representatives of all three interests in conference, but declaring that negotiations have merely commenced and that nothing definite has yet been accomplished.

The Brill company is primarily an electric railway car building concern, but of late years has engaged in the making of gasoline rail cars and trucks and trackless trolleys. It has also built some bus bodies for the Fageol interests. Hall-Scott Motors, Inc., has built engines for Fageol buses.

S. M. Curwen is representing the Brill company in the negotiations, which, if successful, should result in one of the strongest combinations in the bus and other commercial transportation fields.

Edsel Ford Explains Changes in Models

DETROIT, MICH., Aug. 27—Edsel B. Ford, president of the Ford Motor Co., in a statement following the announcement of improved Ford bodies and chassis refinements, said:

"We do not want the impression to prevail that we are producing new Ford cars.

"Bodies for Ford cars have been materially improved, but the Model T chassis remains unchanged, except for a lowering of the frame and a few other important changes. Bodies, in four types, have been completely redesigned and built lower to contribute to better appearance, driving and riding comfort and roadability of the cars.

"Body improvements and chassis refinements at this time are more pronounced than at any previous time since the adoption of the Model T chassis.

They are, however, entirely in accordance with the policy of the Ford Motor Co. to give to the public the benefit of every improvement which we find practical for Ford cars.

"By preserving the design of the Model T chassis, the company is safeguarding continued good service for owners of approximately 9,000,000 Ford cars and trucks now in use throughout the country as well as for new car purchasers."

Price Cuts Announced by Moon Motor Car Co.

ST. LOUIS, MO., Aug. 26.—The Moon Motor Car Co. today announced price reduction, effective Sept. 1, of from \$50 to \$200 on all Moon Series A models, with the exception of the sport roadster. The price of the sport roadster remains the same—\$1,395—as does the price of the chassis—\$995.

It was said that the reductions were the direct results of the unprecedented sales of these cars for the first seven and one-half months of this year. These have been the best in the history of the company. The new prices, including disc wheels, hydraulic four brakes, four balloon tires and Duco finish, are:

Model	New Price	Old Price
Touring car	\$1,195	\$1,295
Two-door Deluxe sedan ..	1,495	1,695
Four-door standard sedan ..	1,545	1,595
Four-door Deluxe sedan ..	1,695	1,785
Coach Deluxe	1,395	1,495
Cabriolet roadster	1,595	1,695

Flint Motor Co. Elects New Officers

FLINT, MICH., Aug. 26.—At a meeting of the directors of the Flint Motor Co., held today, R. H. Mulch of Toronto was elected vice-president and general manager, and C. O. Miniger of Toledo was elected chairman of the executive committee.

Mr. Mulch is vice-president and general manager of Durant Motors of Canada, Ltd., formerly general manager of the Chevrolet Motor Co. of California.

Mr. Miniger is well known in the industry as the founder and president of the Auto Lite Co. of Toledo and the U. S. Light and Heat Co. of Niagara Falls. He is also a director of the Willys-Overland Co.

W. R. Willett has been appointed assistant to W. C. Durant, president of Durant Motors, Inc., with headquarters in New York City.

SEAMAN BODY BUSY

MILWAUKEE, Aug. 26.—The plant of the Seaman Body Corp. in Milwaukee is working overtime in order to keep up with expanding business.

Report G. M. Buys Austin Motor Co.

Cables Tell of Big Deal with English Concern—No Denials Here

NEW YORK, Aug. 27—The report that the General Motors Corp. has acquired the Austin Motor Co., Ltd., given in cabled advices today from London, is received with considerable credence here, although neither confirmation or denial could be obtained at the General Motors offices.

In export circles the move is regarded as a logical one for General Motors, as the corporation would thus acquire a plant in England particularly fitted to turn out the types of vehicles that have found most favor in the British and other foreign markets. With American production methods and with the General Motors distributing organization, it is pointed out, the factory would be very favorably placed in competition abroad. The Austin company has a 7-hp. car selling at £149 and upwards; a 12-hp. model at £355 and up, and a 20-hp. at £525 and up.

J. D. Mooney, president of General Motors Export Corp. and vice-president of General Motors Corp.; J. J. Raskob and A. H. Swayne, vice-presidents of General Motors Corp., and other officials have been in Europe for several weeks. Sir Herbert Austin, head of the company bearing his name, returned recently to England after a trip to the United States.

Los Angeles Plans for Closed Car Show in Fall

LOS ANGELES, Aug. 26—The Los Angeles Motor Car Dealers' Association has definitely decided to hold a Closed Car Salon this Fall, either in the last week of October or the first week in November, according to an announcement by Secretary Burt Roberts. The exhibition will be staged in the Biltmore Hotel.

Each distributor will be permitted to exhibit only one closed job of each make of car he handles. It is necessary to make this limitation owing to the amount of display space available at the hotel. There will be no admission charge, the show being financed by a flat assessment against the exhibitors, which is expected to amount to approximately \$175 each. The show this year will run five days as against three days last year.

RECORD ORDER FOR BLISS

BROOKLYN, N. Y., Aug. 27.—The E. W. Bliss Co. announces that it has placed what is probably the largest single order for sheet metal working machinery in recent years, involving more than \$1,000,000 and including about 350 presses ranging from small bench presses up to those weighing more than 150 tons.

SAYS SALES ARE NOT DUE TO REDUCTIONS

DETROIT, Aug. 26—An automobile executive whose business it is to keep in close touch with the pulse of the industry and whose frankness in speaking of the trends has caused his brother executives no little amount of uneasiness has this to say about the recent price reductions helping the sale of passenger cars.

"I don't believe that the present sale of passenger cars has been helped to any great extent by the reductions in prices which have taken place recently. They have helped some, but their effect is greatly overrated in my opinion.

"I say this simply because I don't think the large majority of persons are inclined to buy on a downward market. They reason that if prices are dropping they are liable to continue for the time, and why buy at the present time? It's the same reasoning that governs men in the buying of various stocks or in playing the grain market."

This executive, be it known, has been unusually successful in playing the stock market. He is known for his ability in "calling" the trends of the industry. While his opinion may or may not be correct, nevertheless it expresses the viewpoint of many in the industry regarding this particular question.

NEW VELIE SEDAN

MOLINE, ILL., Aug. 27—The Velie royal sedan now presents a somewhat different appearance, due to changes which have been incorporated in it, and its price has been reduced by \$100, to \$1,825.

This model now has double belt moldings, and the curved sun visor is integral with the top. It is finished in two-tone Duco, options of gray and blue being offered, each with a gold hair line stripe. Upholstery is Chase velmo with broadcloth headlining and trimming.

The light control switch is mounted on the steering column along with the spark and throttle levers. Accessory equipment includes cigar lighter, rear vision mirror, automatic windshield wiper, spare tire, tube and cover, front and rear bumpers, combination stop and tail-light, motometer, radiator cap, and tools.

MOON EXTENDS PLANT

ST. LOUIS, Aug. 26—Moon Motor Car Co. has occupied the plant at Douglass Street and Terminal Railroad tracks formerly used by the Broderick and Bascom Rope Co., to increase its shipping facilities. The new plant is occupied by the manufacturing and shipping divisions of the company. A shipping dock 400 feet long enables the company to load 100 cars additional daily.

Says McKenna Duties Should Help Trade

Sir Wm. Letts Believes Manufacturers Have Great Field in Britain

TOLEDO, OHIO, Aug. 27—The British automobile market holds a great opportunity for American manufacturers who approach it with a full realization of its possibilities and its problems, according to Sir William Letts, veteran automobile manufacturer and president of the Willys-Overland-Crossley Company of Manchester, England.

Sir William, now on his twenty-sixth visit to America, recently was elected president of the Society of Motor Manufacturers and Traders of Great Britain.

"The McKenna duties of 33 1/3 per cent on motor cars imported into Great Britain, which have recently been reimposed, contrary to a rather common impression, should stimulate and greatly improve the opportunities of the British market," said Sir William.

Prosperity Needed

"Obviously, the development of the British market for automobiles must depend fundamentally upon the prosperity and steady employment of the British workman. By placing a protective tariff on automobiles, Great Britain gives her domestic manufacturers an opportunity to develop a large volume of business and to keep domestic labor employed, thus putting into the pockets of workmen the means of purchasing automobile transportation.

"Those American manufacturers who have studied this situation realize that their opportunity in this market lies in the establishment of British factories to build in Great Britain cars which have the economies and advantages of your volume production and American design."

Velie Producing Brougham, Luxuriously Equipped

MOLINE, ILL., Aug. 26.—Velie Motors Corp. is now in production on a new five-passenger, four door brougham finished in two-tone gray Duco with black fenders and velour-trimmed gray corduroy upholstery.

The rear compartment is provided with arm rests, dome light, robe rail, and silk curtains. Rear quarter windows are operated by single lift regulators and door windows by the Dura four-turn type. Windshield is a one-piece ventilating type and the sun visor is integral with the roof. Body hardware is finished in chased silver.

The instruments are grouped in a glass covered, satin silver oval panel which is indirectly lighted. All light controls are operated by a lever located on the steering post.

Car Makers Refill Their Sheet Stocks

**Urgent Orders Received by Many
Mills—Automotive Buying Is
Bright Spot in Steel Trade**

PITTSBURGH, Aug. 27—There has been a considerable increase in sheet buying from steel mills by automobile producers. Mill officials explain the increase by stating that motor car manufacturers underestimated their requirements and let their stocks run down. Urgent orders have recently been received by a number of mills, many by telegraph.

One leading concern making sheets here found on Monday of this week that more than one-fourth of its total business was from automobile companies.

The price is now firm at 4.25c. for full finishes. A motor company which specializes in coaches placed a large sheet order among seven manufacturers. Other grades of sheets are showing an advancing tendency. The feature of the buying this week has been the inclination to buy further ahead.

Mills at Three-Fifths Capacity

NEW YORK, Aug. 27—Automotive buying, although routine, continues to be one of the few bright spots in the steel market. Cold- and hot-rolled strip steel and cold-finished steel bars meet with good demand from automotive buyers. No very large tonnages are being taken by any one consumer, but in the aggregate orders suffice to keep the mills operating at a very fair rate, approximately three-fifths of mills' capacity being engaged.

Higher Prices Opposed

There has been no occasion so far for sellers and buyers to lock horns over fourth-quarter prices, as all orders are accompanied by specifications and carry instructions for September shipment. Certain it is that buyers will not readily concede any price advances, and automotive consumers especially seem determined that, even though proposed price advances carry with them the conventional opportunity to buyers of protecting themselves at old prices before the advances become effective, nothing should be left undone to convince steel producers of the inability of the automotive industry to concede higher prices for any raw material at this time.

Price Change Inevitable

Some steel market soothsayers proclaim that sheets are destined to play the part of the bellwether in any upward movement of finished steel products. The price for sheet bars is being held pegged at \$35, and non-integrated sheet rollers are protecting themselves rather freely at that level for their semi-finished material.

In some quarters no out-and-out price advance is looked for before the snow flies; in others the opinion prevails that late September or early October will bring a change. Announcement of higher prices by steel producers, however, is one thing and the acid test of higher prices through representative sales quite another. Never before have buyers, especially automotive consumers of steel, been so determined to oppose steel market advances as they are at present, and it will be interesting to watch developments.

Aluminum Prices Unchanged

Norwegian arrivals are of accustomed extent, and so far as European competition is concerned, there is no indication of its assuming a more important position. The market is a routine affair, with prices unaltered.

Copper.—Having scored a good advance, the market is now taking a rest. Demand for automotive brass and copper products is fair.

Tin.—Seesawing of prices for this metal continues.

Lead.—Paucity of supplies seems little relieved, but prices seem to have reached a point from which they must recede, because they are higher than consumers will pay for any but their most urgent needs.

Zinc.—Firm.

Body and Wheel Demand Affects Lumber Industry

MEMPHIS, TENN., Aug. 26—After a quiet period in hardwood lumber circles during August, the last lap of the month shows some improvement. It is intimated that the thirty or more mills in this section that closed down will resume. The Fisher Body Co. in North Memphis, the Fisher-Hurd Lumber Co. the Kelsey Wheel Co. and several plants in new South Memphis catering to the automobile trade are active and in oak, hickory, ash, poplar and other items there is a close relation between this class of manufacturers and the automobile trade.

The tire trade in Memphis in August is exceptionally good. Many of the firms joined in a publicity campaign to urge their trade to buy and avoid market fluctuations that might come.

The oil and service stations and auto laundries are having brisk trade, with a slight betterment in oil values in favor of the customer much appreciated.

BID FOR STUTZ STOCK

NEW YORK, Aug. 26—Holders of Stutz Motor Car Co. stock have been asked to release 10 per cent of their holdings within ten days after Feb. 15, 1927, in order to provide an option of one-tenth of the capital stock to be sold to F. E. Moskovics, president. Directors agreed to this rather than increase the capital when Mr. Moskovics stipulated that he be permitted to buy 10 per cent of the stock. Stockholders will receive \$10 a share.

Report Plans for New Small Models

**Detroit Manufacturers Said to Be
Working on Foreign Cars
Now**

DETROIT, Aug. 27—Motor cars on the foreign model, with wheelbases shorter than the Ford and capable of giving more than 40 miles a gallon of gasoline, will be introduced to America by Detroit manufacturers soon after the New Year, it is predicted by Continental Motors Corp. This report coincides with well-substantiated rumors to the effect that American manufacturers are nearly ready to announce models for sale abroad that will compete directly with the light European makes.

The Continental company has imported a standard "Austin" model, made in England, and contemplates designing engines which will go into smaller cars for this country. The Austin has been found best adapted to redesigning for use here, it is pointed out. Such cars, it is declared, will find their use here chiefly for city or interurban driving over smooth paved roads. They will be two and four passenger jobs.

These new cars, says the Continental announcement, will be exact miniatures of the standard American makes, as the English body lines will be changed to conform to American models. As yet there is no intimation as to the price range.

Timken-Detroit Co. Acquires Oil Burner

CHICAGO, Aug. 27—The Timken-Detroit Axle Co. has signed a contract with the Socony Burner Corp., a subsidiary of the Standard Oil Co. of New York, by which it gets the exclusive manufacturing and sales rights for the Arrow Oil Burner in all of the continental United States outside of New York State and the New England States. The latter territory is covered directly by the Socony Burner Corp. The Timken-Detroit Axle Co. has organized a subsidiary company, called the Timken-Detroit Co., with an authorized capital of \$1,000,000, which will market the device under the name of the "Timken Arrow Oil Burner." Manufacture of the machines will soon be started in the axle company's Chicago plant, and in the meantime immediate orders will be filled with burners from Socony's Brooklyn plant. For the next few months the sale of the burners will be confined to Detroit and vicinity, and all installations will be made under supervision of engineers from the Socony factory. A training school for installation engineers and service men will be established at the Detroit factory, and as rapidly as men can be trained the distribution of the Timken Arrow Oil Burner will be pushed in other localities.

Men of the Industry and What They Are Doing

Conelli Visits U. S.

F. A. Conelli, Milan, Italy, general representative of the Ditzler Color Co. for Continental Europe and the British Isles, accompanied by Louis Merville, president Merville & Morgan, Inc., varnish manufacturers, Paris, France, has just completed a two weeks' visit at the Ditzler Works, Detroit. Merville & Morgan, Inc., are exclusive distributors of Ditzler automotive painting products for France and the French colonies.

Keene Is Transferred

The Swan Carburetor Co. announces the transfer of C. F. Keene from the Kansas City territory to the Pacific Coast territory, where he will act as district manager for the Perfection Heater & Mfg. Co. and its subsidiary, the Swan Carburetor Co.

Prentiss Promoted

Don Prentiss has been named manager of the sales promotion department of the Olds Motor Works by D. S. Eddins, general sales manager. Mr. Prentiss succeeds T. J. O'Brien who is on a six months' leave of absence.

Main in New York

C. Curtiss Main, formerly sales representative in the southern territory for the Curtis Pneumatic Machinery Co., has joined the executive staff of Doyle, Kitchen & McCormick, Inc., advertising agents at 2 West Forty-fifth Street, New York.

Willys Predicts Gain for September Business

TOLEDO, Aug. 26—Increase in business for September is predicted by John N. Willys, president of the Willys-Overland Co. He estimates production in September for his company will be 25,000 cars which is considerably more than are being made this month. Last week production schedules were narrowed down by the factory and some men laid off. It is believed that this is only temporary and due largely to the immediate effect of the price changes.

FIGHT BUS REGULATION

DETROIT, Aug. 27—It is understood here that the State of Michigan will join with other States in opposition to the regulation of interstate motorbus and truck lines by the Interstate Service Commission. It is charged that the commission is too unfamiliar with local problems to handle emergency situations properly. The action is the result of a suit brought by a Detroit-Toledo hauling company to avoid regulation. The Michigan court ruled that neither State had jurisdiction.

CHEVROLET OFFICERS WIN PROMOTIONS

FLINT, Aug. 26—Three executives, high in the ranks of the Chevrolet Motor Co., have been promoted to better positions in Europe with the General Motors Export Corp., according to an announcement made by Edwin R. Palmer, comptroller of the company.

The three, C. C. McBratney, T. C. Egan and H. W. Vane, will form the financial directorate for the General Motors plants abroad.

Previous to his new appointment, Mr. McBratney had been assistant to Mr. Palmer, while Mr. Egan had supervision of the payrolls and similar accounting. Mr. Vane has been in charge of general accounting work of the company.

Treadway Withdraws as Head of Baker R. & L. Co.

CLEVELAND, Aug. 27—The Baker R. & L. Co., which manufactures automobile, truck, taxi and bus bodies and factory haulage equipment, has made a shift in three of the head officers of the organization, at a stockholders meeting during the last week.

President F. W. Treadway requested that he be relieved from the active duties of his position, according to report. Following the meeting it was stated that he had found his legal work as member of the law firm of Treadway & Marlett encroaching on the time he sought to devote to the Baker company.

The company acceded to his request but made him chairman of the board of directors. E. J. Bartlett, general manager, was elected to fill the vacancy and E. J. Stahl was elected vice-president. W. C. Fisher was re-elected secretary and all the directors were retained.

This company is a merger of the old Baker Electric and Rauch & Lang companies, which was effected in 1915.

STELLITE CO. IN KOKOMO

KOKOMO, IND., Aug. 26—Haynes Stellite Co., manufacturers of Stellite metal cutting tools and other articles of these high speed, rust and corrosion resisting alloys, has just completed concentration of the company's activities at its plant at Kokomo, Ind. All service in connection with the company's products will hereafter be extended direct from the plant. Headquarters for administration, sales and engineering activities will be at Kokomo, these being conducted under the direction of C. G. Chisholm, general manager.

MacMartin Quits Bosch

J. A. MacMartin has resigned as secretary of the American Bosch Magneto Corp., and R. W. Washburn, formerly of Ernst & Ernst, certified public accountants of Boston, with title of assistant secretary, has been appointed to take over his duties.

Percival with Tourist Association

Major Charles G. Percival, for eight years sales promotion manager of the Peerless Motor Car Co., has become associated with the American Tourist Camp Association, as secretary and general manager.

Cunningham Goes to Europe

Harry L. Cunningham, secretary-treasurer of the Rickenbacker Motor Co., has sailed for Europe to study market conditions for American cars in general with special attention to the Rickenbacker line.

Freitag With Kissel

R. C. Freitag, formerly assistant general sales manager for the Eveready Hosiery Co., Milwaukee, has just been made advertising and sales promotion manager of the Kissel Motor Car Co., Hartford, Wis.

Moore Wins Golf Honors

K. A. Moore, assistant traffic manager of the N. A. C. C., won the golf tournament of the Michigan State Traffic Golf Association, in Lansing, against a field of 56 managers of various industrial firms.

Hitchcock Resigns

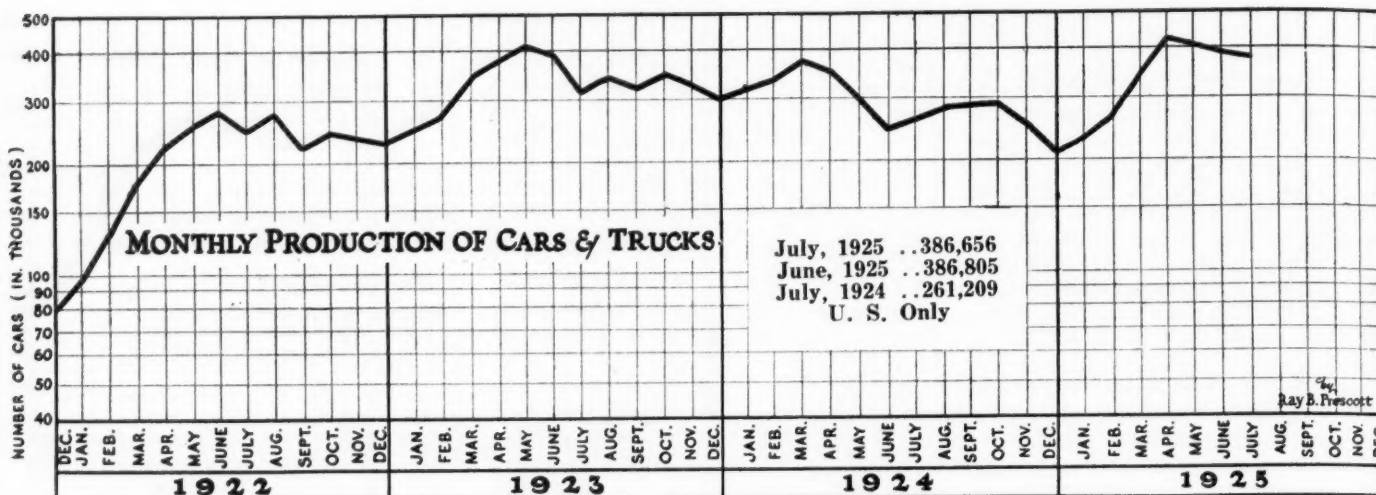
The resignation of F. B. Hitchcock as a director of the Auburn Automobile Co. has been accepted and L. B. Manning elected to complete his unexpired term.

Special Painting Exempt from Tax, New Ruling

NEW YORK, Aug. 20—Where special painting or lettering is made on an automobile or automobile part, the Sales Tax Division has just held that the charge therefore, if billed separately, is not subject to tax, according to M. L. Seidman, tax expert of Seidman & Seidman, Certified Public Accountants, of this city.

By special painting or lettering, Mr. Seidman explained, is meant painting or lettering in addition to the ordinary painting usual or necessary to complete the automobile or part. It would include painting the name and pictures of the articles sold, on a delivery wagon, or the name of an automobile or the dealer on a tire cover, etc. It would not include customary painting or even special color painting in some instances.

July Production Record Established



New Projects Show South Trade Large

Building Figures in First Seven Months Exceed Same Period in 1924

ATLANTA, GA., Aug. 26.—With approximately 200 new projects announced during July by automotive distributors, dealers and garage companies in the southern States, including construction of service stations, garages, sales buildings, etc., and new companies formed in the automotive field, the industry established one of its largest monthly records for the year, bringing the total of such projects to nearly 1300 for the first seven months of 1925. This is considerably in excess of the corresponding seven months of last year, and virtually insures a new record for the industry in the South in 1925 in this respect. The figures cover the 16 southern States and include only the more important projects.

In new construction car distributors have been particularly active this year in Georgia, East Tennessee, the Carolinas and Florida, where several million dollars have been invested in new automobile buildings. Atlanta leads the cities.

In the motor bus field alone more than 50 projects were announced in July, including new companies formed, extension of lines and terminal construction projects.

Fall Buyers' Week Success

The annual Fall Buyers' Week, held in Atlanta, Aug. 17-22, by the Atlanta Merchants and Manufacturers Association, was one of the most successful in the history of the association. Thousands of southern merchants visited the city to make their purchases for fall trade in much greater volume than usual.

Automotive accessory jobbers taking part in the event reported particularly good business, with a sufficient volume

of sales to make August one of the best months of the year for wholesale accessory business in Atlanta. Tire distributors also reported fair volume, but said the present condition of the tire market affected sales.

Accessory jobbers taking part included the Alexander-Seewald Co., Ozburn-Abston & Co., Southern Bearings & Parts Co., the King Hardware Co., the Crumley & Sharp Hardware Co. and the Beck & Gregg Hardware Co.

Battery Association Plans Autumn Convention Here

NEW YORK, Aug. 27.—The program for the Fall Convention of the National Battery Association, to be held in the Hotel Roosevelt, New York, Sept. 18 and 19, 1925, lists for discussion: The lead situation; mis-branding batteries; cooperation of the service station; standard ratings for batteries; statistics of battery industry; a credit bureau; the latest inventions and improvements in the battery field; trade customs.

The speakers to present these different subjects will be announced in the near future, and those in charge of the program are arranging for as wide an opportunity as possible for discussion following the addresses and papers.

MACK BUILDS BRANCH

MILWAUKEE, Aug. 26.—Next spring will see construction work started on the new \$150,000 sales and service building now being planned by the Mack-International Motor Truck Corp. organization for its Milwaukee branch. It will be up-to-the-minute in equipment and designed and constructed on the standard plan for branches drawn up by engineers for the company. The Milwaukee branch construction activity reflects a general condition throughout the country according to Rodney Hallam, manager of the local branch, who pointed to the new Chicago branch and plans for a proposed million dollar branch at Los Angeles as further proofs of Mack-International building activity.

Automotive Taxes in July \$14,837,609.19

This Represents \$3,364,189 Gain Over the Same Period Last Year

WASHINGTON, Aug. 26.—Internal Revenue Bureau collections from the automotive industry for July, last, amounted to \$14,837,609.19 or an increase of \$3,364,189.56 over collections during July, 1924, which were \$11,473,419.63, it was announced here this week.

The total July, 1925, collection including income tax, were \$125,866,689.58 or an increase of \$15,051,804.43 over July, 1924, collections, which were \$110,814,885.15.

The segregated taxes of the automotive industry for July, 1925, give automobile trucks and automobile wagons \$659,666.70 as compared with \$902,219.74 in July, 1924; other automobiles and motorcycles, \$12,332,971.60 in July, 1925, as compared with \$7,605,505.16 for July, 1924, and automobile parts and accessories for July, 1925, \$1,844,970.89 as compared with \$2,965,694.71 for July, 1924.

JULY TRUCK PRODUCTION

WASHINGTON, Aug. 27.—The Department of Commerce announces revised figures on the production of automobile trucks in the United States for July as 39,938 trucks, instead of 37,431 trucks as previously announced. Canadian production is unchanged at 1780, making the total July production for U. S. and Canada 41,718.

OPENS NEW TIRE PLANT

BALTIMORE, Md., Aug. 26.—A new plant for the manufacture of the Schenit Double Grip tire was formally opened in this city last week by Frank G. Schenit.

Used Car Sales Are in Excess of 1924

N. A. D. A. Members Studying Closely Question of Used Car as Merchandise

ST. LOUIS, Aug. 26—Used car sales in the first six months of 1925 were about 17 per cent in excess of the figures for the first six months of 1924. This estimate, made by the National Automobile Dealers' Association, is believed to account for the fact that the dealers had used car stocks on hand July 1 this year of 40 per cent less than the same time a year ago.

Reduced stocks and greater sales for the same period, National Association merchandising authorities believe, are due to the closer understanding between the car-using public and the car dealers. The public is rapidly beginning to understand, say National business leaders, that in using an automobile, the owner of it is wearing out value which he must be willing to lose when he is ready to get a new car. Automobile owners generally, too, are recognizing that if they are going to dispose of the old car on the basis of what they can get for it, regardless of what new car is selected, they are in a fair way to be the buyer of a potential "orphan automobile," or pay a higher list price for the new car than is

justified by the quality of the car finally selected.

Salesability of the used car as merchandise is a point the dealers are considering more closely. Thousands of automobile users are going to find, in the remainder of this year and throughout next, that the car they chose a year ago, on the basis of the old car allowance, has no market demand and is not wanted in dealer stocks at any price.

National Tire Dealers Change Meeting Plans

NEW YORK, Aug. 26—George J. Burger, President of the National Tire Dealers' Association, announces changes in the plans for the annual meeting of the Association. The meeting will be held at the Hotel Chase, St. Louis, November 17-19. On the first day, the directors and the convention committee will meet and the first general meeting will be held next day, with a banquet that night. The convention will close with another general session and banquet on the 19th.

A. L. Glick of Pittsburgh and A. P. Woehrle, of St. Louis, have been elected to the board to succeed Clay D. Manville of Pittsburgh and H. L. Alden, of Minneapolis, resigned.

BANTAM POLICIES UNCHANGED

BANTAM, CONN., Aug. 26—Bantam Ball Bearing Co. denies rumors that by a stock transfer the company has passed into the hands of a new organization.

Change Trade Days of National Shows

Hours During Monday and Tuesday Reserved as Business Sessions

NEW YORK, Aug. 27—The plans for the 1926 National Automobile Shows in New York and Chicago include a change in the Trade Days, which featured the show this year, from Friday and Saturday to parts of Monday and Tuesday in the actual period of display. It is thought that this arrangement will suit the convenience of the local and visiting factors in the trade, and, in the case of the visitors, will preclude the necessity of their coming here forty-eight hours in advance. The hours reserved are from 10 A. M. to 1 P. M. Complete details are not yet available, but the days and hours mentioned are authoritative, and intending visitors will be able to make their plans on that basis. Credentials will again be free to those who visit the show in the trade periods.

The distribution of blank applications for car space in both the New York and Chicago shows will be begun this week by the Show Department of the National Automobile Chamber of Commerce. The same procedure will be followed by the Motor and Accessory Manufacturers' Association for the accessory sections.

The Week's Developments in Motor Stocks

NEW YORK, Aug. 27—Supplies of credit continue the determining factor in the speculative markets. Those who seek in the fundamentals the indications for the future course of prices are not greatly moved by the wide fluctuations in specialties which have served to quicken the pulse of speculators in the last week. Rather, they are watching the bank returns from the various centers with their indications of quickening business and the use being made of the available supplies of credit.

In the present instance, the banks are not disposing of their investments in any considerable quantity, but are beginning to apply pressure against collateral loans and are supplying additional credit for business by using the rediscount facilities of the Federal Reserve. This is notably true at Cleveland, and, to a less extent, at Boston. The Chicago bank returns seem to indicate that a similar policy is immediately probable there.

This survey seems timely, not only because the call money rate at New York has shown a decidedly firmer tendency during the week, but also because the action of the stock market itself has be-

trayed the highly artificial character of the speculation. Nothing of a fundamental character occurred overnight to make Chrysler Motors, General Railway Signal or Havana Electric, to cite three specific instances, worth \$20 per share more than on the preceding day, and the promptness with which these gains were lost served only to add to the caution of the trained and sober market observer.

There are evidences of considerable business activity, but there are complaints of the smallness of profits attending commercial operations. Profits, unquestionably, are small as compared with those of the World War period and immediately succeeding the armistice, but the strong, well managed corporations apparently are making what, in pre-war days, was considered a fair return. What seems probable is that individual income is large, as shown by the general purchasing power, while that of corporations is relatively small. In no other way can the figures of car loadings, bank clearings and bank savings be reconciled.

In the automotive group, the large volume of transactions and wide fluctuations in prices of Mack Trucks, Chrysler

Motors and White Motors have had no new explanations. The known large volume of orders, with anticipated profits proportionate to that volume by makers of motor trucks, have served as an excuse for the speculation in these shares. In White Motors the activities of a New York speculative group is held responsible for the activity—an activity which, it is quite generally understood, is viewed with strong disapproval by the leading interests in the corporation. Similarly, the truck business is responsible for the strength of Packard Motors and Pierce-Arrow, although a considerable short interest in the latter is understood to be in difficulties. The advance in Chrysler was merely a repetition of the speculative movements which have characterized the whole advance in this and its predecessor company, Maxwell, stocks.

Declines were the rule in the tire and rubber company stocks. The recent violent speculation in crude rubber encouraged indiscriminate purchases of these stocks and now the rubber market, having ended its day of activity, belated holders of tire stocks are accepting the actual loss in place of the anticipated speculative profit. H. H. S.

Electric Association Program Announced

Patents, Service, Standards on Card for Eaglesmere Park September Meeting

NEW YORK, Aug. 27—At the general meeting of the Automotive Electric Association, to be held at Eaglesmere Park, Pa., Sept. 14-17, discussions will be held on the chief activities of the organization, which are grouped around three subjects, namely, patents, maintenance service and engineering standardization.

The Legal and Patent Committee will hold a session to review developments during the past year. In view of the importance of the Supreme Court decisions some weeks ago in the case of Maple Flooring Manufacturers and the Cement Manufacturers Protective Association, it is probable that considerable interest will be developed at the Thursday morning session of this committee in regard to the legal phases of trade association work.

State Regulations

It is probable that attention will be called to the Federal statute enacted early in the year, giving force and effect to decisions of arbitration committees. The activities in certain States during the past year makes it advisable for all companies doing interstate business to study carefully the various State regulations defining "What Constitutes Doing Business." Just how to pass out such information as will make clear to member companies what they can do in order to avoid conflict with the regulations of the various States in the course of promoting their business, will also be discussed.

The Maintenance Committee will discuss problems in relation to sales and service, including a review of developments during the past year, at the joint session Tuesday morning with representatives of the Automotive Electric Service Association.

Maintenance Problems

The chief problems of the manufacturers with respect to maintenance service consists in locating an increasing number of capable, skilled service operatives to take care of maintenance service on the constantly increasing number of motor cars. A two-fold educational process must be continuously carried on; first, from a technical standpoint, particularly with respect to engineering information relative to new designs of equipment on new models of cars; second, from a commercial standpoint, in order that units, parts and accessories may be efficiently merchandised.

At the September meeting the electrical engineers expect to complete specifications for testing ignition equipment. Upon approval by the association these specifications will subsequently be printed

and distributed to manufacturers of automobiles. The same applies to a classification for generators for use on motor coaches; also in regard to standard wiring practice which the electrical manufacturers will recommend for use on motor coaches. Willard C. Brown, commercial engineer, National Lamp Works, will read a paper on "Motor Car Lighting and Lighting Service" at the Wednesday morning session.

The Automotive Electric Association in cooperation with the Automotive Electric Service Association have in process a course of instruction which will be recommended to automotive electrical trade schools. It is expected that the proposed standardized course will be approved by the association at this meeting.

Incorporate Distribution and Warehouse Publications

NEW YORK CITY, Aug. 27—Distribution and Warehousing Publications, Inc., has been incorporated at Albany, N. Y., and has been taken over from the Chilton Class Journal Co., the publishers of *Distribution and Warehousing*, the national business journal of the public storage industry. The new corporation becomes a subsidiary of the United Publishers Corp., which publishes several score of business magazines in cities from coast to coast. The officers and directors of Distribution and Warehousing Publications, Inc., located at 243-249 West Thirty-ninth Street, New York, are as follows:

President and general manager, Andrew K. Murray; vice-president, Kent B. Stiles; secretary, J. K. Lasser; treasurer, E. P. Beebe; assistant treasurer, H. S. Webster, Jr.; directors, Charles G. Phillips, Fritz J. Frank, H. J. Redfield, Andrew K. Murray and Kent B. Stiles.

The business and editorial policies of *Distribution and Warehousing* remain unchanged under the publishing supervision of Distribution and Warehousing Publications, Inc.

French Manufacturers Decide Against Exhibit

PARIS, Aug. 12 (*By Mail*)—The French automobile industry having decided against a show this year, persistent rumors are circulating in Paris to the effect that dealers in American cars will organize their own exhibition in the French capital. Such a show is unlikely, for it would cause those taking part in it to be disqualified from the official French show.

Henri Cezanne, general manager of the Paris Salon, stated that no public exhibition of any kind will be tolerated; an exception, however, will be made for used car shows, providing they do not last more than four days. Dealers at Lille announce a show for the fall, but manufacturers have been warned that if they take part in it they will not be allowed to exhibit in the Grand Palais in 1926.

Chevrolet Writes Ads for Local Use

Individual Needs Are Studied and Met by Experts Under New Plan

DETROIT, Aug. 27—Chevrolet has introduced an advertising plan by which the needs of each individual dealer and the problems confronting him in his territory are analyzed by experts, who design an advertising campaign especially to meet his needs and problems.

The Chevrolet Motor Co. charges a small amount for each car shipped to dealers and credits this to the Chevrolet Dealers' Association Advertising Fund, to which the company adds a substantial amount from its own advertising budget.

Fund Used For Campaign

This fund is used to plan the campaign, prepare the advertisements, buy space, send the advertisements direct to the advertising medium and also to direct the printing and display of outdoor advertising.

The dealer is consulted before his advertising is written both as to his needs and the advertising medium which should be used, and the best billboards to use.

The plan was adopted Aug. 1 as a further means of promoting economical distribution. "This is local advertising nationally directed and should not be confused as national advertising used locally," says J. E. Grimm, Jr., Chevrolet advertising manager.

S. A. E. Committee on Papers Plans Program

INDIANAPOLIS, Aug. 26 — The Meetings and Papers Committee of the Indiana Section, S.A.E., held its first meeting to plan its fall meetings and papers. Frederick E. Moskovics, president of Stutz has accepted the chairmanship of the committee and in the conference on the year's work were George T. Briggs, sales manager of Wheeler-Schabler Company, section chairman; Raymond F. Buckley, chief engineer of Robt. I. Hassler Inc., secretary; Wm. Guy Wall and Fred Duesenberg, both of whom have served on the meetings and papers committee of the section; C. A. Trask, treasurer of the section, and O. C. Berry, former section chairman. The schedule mapped out calls for a series of meetings beginning in October and a definite subject has already been assigned to all but two meetings of the year.

Final announcement of the fall schedule with meeting subjects will be made by the middle of September by which time the noted speakers tagged by the committee will have time to accept the honors which the live "Hoosier" committee has thrust on them.

Chrysler Insurance Plan is Unchanged

Alabama Official Rules Dealer Under It Is Not Acting as an Underwriter

NEW YORK, Aug. 26—There has been no essential change or modification of the Chrysler insurance and finance plans, despite the impression prevalent among insurance men, it is stated by Chrysler officials.

This impression arose from reports of legal developments affecting the plan in Alabama, where the ruling was made that the Palmetto Fire Insurance Co., underwriters of the plan, was operating contrary to the State law. The company thereupon agreed to take out a license to do business in Alabama. At the same time, however, the assistant attorney general, J. Fred Johnson, Jr., made another ruling that supported the fundamental contention of the Chrysler interests—that the dealer by reason of negotiating a sale of a car with insurance included cannot be deemed an insurance agent. Said Mr. Johnson:

Chrysler dealers have absolutely nothing to do with the contracts between the Chrysler Corp. and the Palmetto Fire Insurance Co. They solicit no insurance, have no connection or correspondence with the Palmetto company, do not put the insurance on the car and cannot take it off. They do not receive or transmit the certificate of insurance, nor do they collect or remit any premiums, nor did they do anything in making or consummating of the contract of insurance.

There was, therefore, no reason why the dealers should be required to procure licenses as insurance agents, Mr. Johnson concluded.

Court Actions Awaited

Several States have declared the plan entirely illegal, and others are awaiting the outcome of court actions started in seven or eight capitals.

Of these the Wisconsin suit is regarded as the most important, as it will probably be the first to be carried to the higher courts. Chrysler counsel in this case, as in New York and elsewhere, have obtained a temporary order restraining the insurance commissioner from interfering with the business of the Chrysler Sales Corp. On Aug. 24 the Chrysler company was allowed 15 days in which to file a brief on the granting of an interlocutory injunction, and the insurance commissioner ten days additional.

The Chrysler Corp. is determined to carry the case to the United States Supreme Court, if necessary.

MANUFACTURE STARTERS

TORONTO, ONT., Aug. 25—The North East Electric Co. of Canada, Limited, has begun manufacture of North East starters, generators and ignition.

Financial News and Notes

Fisk Rubber Co. during July had sales of \$9,850,000 and net profit after depreciation but before Federal taxes of \$2,052,000. Net after interest and Federal taxes was \$1,728,000. Net sales for the third quarter ending with July amounted to \$24,579,000 and net profit after depreciation but before interest and Federal taxes was \$4,773,000. After interest and Federal taxes the net amounted to \$3,945,000. Net profits equal \$20.81 a share on \$18,951,500 first preferred 7 per cent stock and, after allowing for the regular quarterly dividend requirements on the first, second and management stocks, the balance equals \$4.51 a share on 796,882 shares no par common. Accumulated dividends on the first preferred total 26 per cent May 1 last and 28 per cent on the second preferred June 15 this year. Net profits for the nine months to July 31 were \$5,930,000, or \$31.29 on the first preferred stock and \$6.12 on the common shares after allowing for the regular dividends on the preferred and management shares for the period. In the first six months of its fiscal year, which ended April 30 last, net sales were \$29,776,000. The company announces that it is now free of bank loans.

Willys Overland Co. consolidated income statement for the six months ending June 30, 1925, including subsidiaries, showed gross profit of \$16,521,967 after depreciation. After expenses and other deductions including taxes, interest and other adjustments, net profit was \$9,148,634. This after preferred dividend requirements was equal to \$3.70 a share earned on the 2,264,644 shares of common stock of \$5 a share par value outstanding. This compares with 88 cents a share in the first half of 1924.

The balance sheet as of June 30, 1925, shows a profit and loss surplus of \$24,349,690 against \$16,437,659 on the same date last year. Cash holdings amounted to \$14,869,125 against \$2,723,922; inventory was valued at \$27,154,534 against \$31,938,107 and notes and accounts receivable \$7,158,079 against \$4,772,663. Among the liabilities are accounts payable equalling \$9,083,969 against \$6,683,104 and accrued interest of \$571,690 against \$775,405.

Goodyear Tire and Rubber Co. of Canada, Ltd., New Toronto, Ont., offers 6 per cent prior preference and common shares which is not a new issue by the company—is being placed on the market for public subscription by Dickson, Jolliffe & Co., Toronto. This common is being offered as a bonus with the prior preference shares, one share of common with each ten shares of prior preferred, the price of the latter being \$100 per share, to yield 6 per cent. This is the first occasion on which the private investor has had the opportunity of subscribing to the common shares, the majority of which are held by the parent company at Akron, Ohio. Subscriptions will be received for the common shares alone at the price of \$52 per share. The prior preference is the senior security of the company, there being no bonds or mortgage indebtedness outstanding.

Stromberg Carburetor Co. for the quarter ended June 30, 1925, reports net profits of \$225,063, after all expenses and deductions. This was equal to \$2.91 a share earned on the 80,000 shares of capital stock outstanding. In the same quarter last year net

profits were \$166,403, equal to \$2.21 a share on the 75,000 shares of capital stock outstanding at that time.

Net profits for the first six months of 1925 amounted to \$385,368, after all deductions, equal to \$4.81 a share on the capital stock against net profits of \$370,708, equal to \$4.93 a share in the same period last year.

Directors declared the regular quarterly dividend of \$1.50 a share on the capital stock, payable Oct. 1 to shareholders of record Sept. 10.

Fisher Body Corp., including subsidiaries and Fisher Body of Ohio, for the quarter ended July 31 last, reported net income was \$5,207,005 after depreciation, interest and Federal taxes, equal, after allowing for Fisher Body of Ohio preferred dividends, to \$2.10 a share on 2,400,000 outstanding shares, \$25 par common stock, against \$8,062,850, or \$3.29 a share, in the preceding quarter, and \$1,696,170, or 64 cents a share, on the same share basis in July, 1924. For quarter ended July 31, 1925, Fisher Body of Ohio Company reports net income of \$1,236,143 after depreciation, interest and Federal taxes, against \$263,604 in the same quarter of 1924.

Moon Motor Car Co. earned in July net profits of \$187,274 after all charges and taxes, equivalent to slightly more than \$1 a share on 180,000 shares of no par capital stock. This establishes a new monthly record and indicates earnings at the rate of better than \$12 a share annually.

"Earnings in the third quarter are running close to \$3 a share for the period," said Stewart McDonald, president. Reason is due to the success of the Diana models. Judging from the orders on hand and number of cars being shipped this month, August's estimated earnings should approximate the July figures."

Gardner Motor Co., Inc., reporting income account for seven months ending July 31, was as follows:

	1925	1924
Net profits	\$18,295.00	\$188,425.00
Capital stock (*Earnings per share).....	.12	1.22

*Based on 155,000 shares.

Balance sheet of July 31, 1925, showed current assets of \$1,040,000 and current liabilities of \$291,000.

Peerless Truck & Motor Corp. stockholders will meet Sept. 22 in Richmond, Va., according to a call just issued, to vote on a proposal to eliminate the holding company and substitute an Ohio charter for the present Virginia charter. The object is tax economy. It is also planned to change the name to Peerless Motor Car Corp. which would inherit the business of the present company with all debts and charges eliminated.

United States Glass Co. directors at a recent meeting in New York took no action on the quarterly dividend of 25 cents then due. Earnings are to be returned into new equipment, improvements, etc. Directors will meet again in November.

Hudson Motor Car Co. has declared quarterly dividend of 75 cents payable Oct. 1 on stock of record Sept. 15.

Miller Rubber Co. has declared a quarterly dividend of \$2 on preferred stock, payable Sept. 1 on stock of record Aug. 15.

Europe's Small Cars Gain in Popularity

Washington Officials Say American Makers Must Meet Competition

WASHINGTON, Aug. 26.—Warning that American motor car manufacturers must immediately cope squarely with the problem of the rapidly growing popularity of the small type European built car if they desire to hold up their export records, was issued here this week by officials of the Automotive Division of the Department of Commerce. The statement hints that it is a possibility that the small European cars may even compete with them in the United States.

"With the three principal European producing countries devoting more and more of their production efforts to the small car," continues the statement, "other neighboring States which make up the balance of foreign automobile-producing nations have not been slow to follow the lead of Great Britain, France and Italy. Belgium has its F. N., Germany its Opel, Austria its Perl, and so on, which are all striving to emulate the success of such outstanding light cars as the French Citroen, the Italian Fiat and the Morris automobiles of England.

Price Differentials

"It is not from the angle of low original investment alone that European light cars have found favor with foreign people since they have come to throw aside their earlier distaste for owner-driven automobiles, for it is found that their quoted selling prices are considerably above those of American low-priced cars, which, however, can not be said to resemble closely the European light car because of the difference in motor displacement and chassis design.

"As an illustration of this marked price differential, one has only to compare recent prices of the Citroen, the small Renault and the Fiat in the Belgian market. These range from 18,000 to 30,000 Belgian francs while that of a well-known, American light car has been around 11,000 francs.

Competitive Factors

"With the European motor car producers yet some steps behind us in their development of mass production methods, it follows that is not on original cost as a basis sales argument that American car manufacturers need fear any competitive marketing advantage passing to the European type of small car, but rather this will result from the stressing of low operating costs on the part of these European producers in their selling campaigns.

"The increasing importance of the light car in the production schedules of British, French and Italian manufacturers has been pointed out. In studying the export statistics of these three countries covering the year 1923 and 1924, the part which cars of this type are taking in enhancing this trade is immediately reflected.

British Exports

"In 1923 Great Britain exported 5278 passenger cars and passenger car and truck chassis as compared with 13,866 in 1924, or an increase of 162.7 per cent. In 1923 France exported 28,261 passenger cars as compared with 43,934 exported in 1924, or an increase

of 55.5 per cent. In 1923 Italy exported 12,773 passenger cars, trucks, tractors and other four-wheeled motorized vehicles as compared with 18,933 in 1924, or an increase of 48.2 per cent.

"In conclusion it is pointed out that current dispatches from various foreign markets tell of further conquests of the small European cars and it is expected that the 1925 figures will show corresponding gains in the export of automobiles in the leading European countries."

Motor Accidents Increased in July

NEW YORK, Aug. 27.—Motor vehicle accidents during the first six months of the current year were at least equal to the 1924 figures, the National Automobile Chamber of Commerce reports in its latest traffic bulletin. A bad recession in vigilance is noted in July, with detailed figures as yet incomplete. There continues to be a number of cities able to maintain a clean slate. During July, 32 had no fatalities.

The bulletin contains the announcement of the fifth annual national safety lesson and essay contest, for which the N. A. C. C. is providing \$6,500 in prizes, and a contribution on highway safety by Frank T. Sheets, chief highway engineer of Illinois, who gives the engineering view of the problem. Measures to increase the safety factor recommended by Mr. Sheets are as follows:

1. Build roads of standard widths, with long radius curves, both horizontal and vertical.
2. Provide long sight distances and avoid blind corners at cross roads.
3. Eliminate railroad grade crossings.
4. Reduce grade to 6 per cent or less.
5. Build bridge roadways wide enough for at least two lines of traffic.
6. Provide proper warning signs.
7. Provide reasonable regulations of speed, parking and lights on vehicles.
8. Police the roads with an efficient force of motorcycle officers.

C. H. Wills Announces New De Luxe Models

MARYSVILLE, MICH., Aug. 27.—C. H. Wills and Co. has announced the addition of a series of De Luxe models to its W-6, six cylinder line. The new "Vogue" models are similar in body design to the De Luxe models on the eight cylinder chassis. Prices range from \$2,735 for the roadster to \$3,600 for the limousine. Equipment furnished as standard includes a full set of five disk wheels, snubbers, automatic windshield wiper, rear vision mirror, dash gasoline gage, cigar lighter, clock, cowl ventilator and ignition spare tire and gearset locks on all models. In addition the closed models are supplied with a sun visor, vanity and smoking sets and door locks. A trunk rack is also furnished on the five passenger sedan. Following are the prices of the new models:

4 pass. Roadster.....	\$2735
5 p. 4 door Brougham	3400
5 p. 4 door Sedan.....	3400
7 pass. Sedan	3500
7 pass. Limousine.....	3600

America's Automotive Export Trade Gains

U. S. Almost Wholly Responsible, Canada Accounting for Less Than 1 Per Cent

WASHINGTON, Aug. 26.—America's export trade in automotive products for the first half of 1925 amounted to about \$185,000,000, suggesting a new high figure for the full year trade, it is announced here by the Automotive Division of the Department of Commerce. The figures show that the last half-year's export business was almost three-fourths of that for the whole of 1924.

Exports from the United States alone were almost entirely responsible for the 35 per cent increase shown by the last half-year's trade over the corresponding period of 1924, as Canada accounted for less than 1 per cent of this improvement in American automotive exports.

Passenger Car Value

The value of passenger cars, which made up more than one-half of the total value of United States' shipments of automotive products in the last six months increased in every class, ranging from 41.4 per cent for vehicles valued up to \$500 to 87.6 per cent for those cars falling between \$800 and \$2,000. Trucks, comprising another major group item, also experienced large percentage gains. The greatest increase, however, was made by automobile engines, of which engines for trucks and buses increased from 790 for the first six months of 1924 to the very high figure of 31,409 for the last six months.

The failure of Canada to keep pace with the United States in the general increase shown by the last six months over the corresponding months of 1925 is largely the result of the temporarily abolished McKenna duties in Great Britain—one of Canada's leading markets—in the latter period. However, with the restoration of these duties, commencing July 1 of this year, it may be expected that exports from this source will again increase in volume.

New Export Sales Organization Formed

NEW YORK, N. Y., Aug. 27.—Maas & Sonneborn, Inc., a newly organized export selling organization, located in the Fisk Building at Broadway and Fifty-seventh Street, New York, will open for business Sept. 1. The company will have direct selling connections, branch offices and display rooms in the principal commercial centers.

Mr. Maas was formerly associated with the Cycle and Motorcycle Manufacturing Co. of Brussels, Belgium, and with the Swift Cycle and Motor Co., Ltd., of Coventry, England.

Mr. Sonneborn has been affiliated with the Chilton Class Journal Co. in its foreign trade department since 1916.

Apperson Co. Reenters Foreign Motor Market

KOKOMO, IND., Aug. 27—Following an absence from the field of more than a year, the Apperson Automobile Company is again resuming distribution in foreign countries, according to O. T. Gurnee, Sales Manager. Sales connections have already been made in several foreign markets, and negotiations will soon be completed in others.

Apperson cars have not been sold abroad since the reorganization of the firm one year ago last July. Mr. Gurnee states, however, that the success of the new Apperson line, introduced last January, has been such that international distribution has been resumed. The response in foreign markets has been good, he says, being particularly strong in Germany.

Alfonzo Grez & Co., New York City, has been appointed Apperson representative for Mexico, Central America, South America and Spain. Friederich Riechert, Bad-Nauheim, Germany, is Apperson dis-

tributor for Germany. Emil Hermannson, Stockholm, is in charge of the distribution for Sweden, while Vadillo and Ervine, New York City, are distributors for Cuba.

It is expected that negotiations will soon be completed for sales representatives in Australia and South Africa.

Prepare Schedules for 1925 U. S. Automobile Census

WASHINGTON, Aug. 26—Schedules for the 1925 census of automotive and other manufactures, to be taken as of December 31 next, are now being prepared by officials of the Census Bureau for submission to the industries affected with a request for suggestions for such changes as are believed desirable. The 1925 census will cover automotive and other establishments in the country with an annual production valued at \$5,000 or over, and will show the changes in employment production and values that have occurred since the last census, which covered the year 1923.

New German Tariff Fixes Motor Duties

WASHINGTON, Aug. 26—Gasoline engines for automotive vehicles are to be dutiable at 200 gold marks per 100 kilos until June 30, 1927, under the new German tariff law enacted by the Reichstag on Aug. 12, according to a cable from Commercial Attaché Charles E. Herring in Berlin, received this week by the Department of Commerce. After June 30, 1927, the gasoline engines are to be dutiable at 150 gold marks, provided they are within the following maximum weights: Four hundred kilos each for four-cylinder motors, 700 kilos each for six-cylinder motors, 900 kilos each for eight-cylinder motors.

The new duties are to become effective probably on some date between Sept. 15 and Oct. 1. The important restrictions are to be abolished on the same date that the new industrial duties become effective. Commercial Attaché Herring adds that he is endeavoring to obtain a statement of the effective date.

Exports, Imports and Reimports of the Automotive Industry for July of Current Year and Total for Seven Months Ending July, 1925

EXPORTS

	Month of July				Seven Months Ending July, 1925			
	1924 Number	Value	1925 Number	Value	1924 Number	Value	1925 Number	Value
Automobiles, including chassis (total)....	11,703	\$8,616,602	20,866	\$14,937,641	106,646	\$76,013,591	162,403	\$123,434,788
Electric trucks and passenger cars.....	6	8,660	7	19,571	85	102,093	80	130,791
Motor Trucks and buses, except electric..								
Up to 1 ton.....	1,209	543,535	.....	.....	12,458	5,103,943	.....	.....
Over 1 and up to 2 1/2 tons.....	421	549,224	849	1,034,090	3,023	4,041,351	5,293	6,684,415
Over 2 1/2 tons.....	122	258,200	119	363,126	842	2,042,810	877	2,665,246
Total motor trucks and buses except electric	1,752	1,350,959	4,292	2,751,043	16,323	11,188,104	27,589	18,344,973

PASSENGER CARS

Passenger cars, except electric:								
Value up to \$500 inclusive.....	4,314	1,596,397	7,266	2,746,210	35,294	12,806,640	51,025	18,596,263
Value up to \$800.....	2,661	1,886,292	4,070	2,811,303	26,728	17,921,058	35,086	24,804,594
Value over \$800 and up to \$2,000.....	2,758	3,160,082	.....	.....	26,253	29,493,767	.....	.....
Value over \$2,000.....	212	614,212	295	832,730	1,963	5,501,918	3,041	8,269,269
Total passenger cars, except electric.....	9,945	7,256,983	16,567	12,167,027	90,238	64,723,383	134,734	104,959,024

PARTS, ETC.

Parts, except engines and tires:								
Automobile unit assemblies (Lbs.).....	18,115,866	3,047,488	14,061,098	2,603,425	181,162,473	32,177,462	147,253,843	25,697,712
Accessories and parts (Lbs.).....	7,641,949	2,176,454	10,281,780	3,100,741	64,484,312	17,283,859	69,600,430	20,954,859
Automobile service appliances (n.e.s.) (Lbs.)	781,376	356,848	1,602,613	582,041	3,672,338	1,450,217	6,527,056	2,729,947
Station and warehouse motor trucks (No.)	12	16,372	6	2,282	89	64,773	196	138,477
Trailers (No.).....	19	9,750	51	39,550	226	103,300	332	161,087
Airplanes.....	2	1,100	9	74,981	44	270,177	62	295,376
Parts of airplanes, except engines and tires (Lbs.)	6,363	9,593	3,712	6,983	118,573	137,370	75,187	88,586

BICYCLES, ETC.

Bicycles and tricycles.....	718	15,578	785	20,451	3,922	99,215	4,727	124,423
Motorcycles.....	604	147,669	1,051	236,065	10,326	2,518,224	13,447	3,051,309
Parts, except tires (Lbs.).....	156,642	93,337	181,164	96,053	1,881,733	1,000,187	1,778,025	964,315

INTERNAL COMBUSTION ENGINES

Stationary and portable:								
Diesel and Semi-Diesel.....	22	9,812	214	21,549	1,094	399,146	472	288,311
Other stationary and portable:								
Not over 10 H.P.....	1,746	172,718	2,512	239,125	13,181	1,214,222	15,586	1,353,338
Over 10 H.P.....	471	248,136	744	304,322	1,577	1,013,723	1,657	1,351,375
Automobile engines for:								
Motor trucks and buses.....	28	6,243	36	12,027	818	97,469	31,445	2,643,054
Passenger cars.....	914	168,794	11,197	1,055,303	13,846	2,110,249	73,468	8,085,546
Tractors.....	232	62,941	123	70,810	686	208,575	418	219,674
Aircraft.....	8	21,818	5	11,682	120	184,774	29	71,269
Accessories and parts for (Lbs.).....	422,558	256,416	845,722	319,753	5,140,418	2,197,518	5,408,162	2,415,602

IMPORTS

Automobiles and chassis (dutyable).....	37	49864	62	70,033	351	497,015	.....	610,600
Other vehicles and parts for them.....	.....	102,123	.....	65,837	.....	765,579	.....	475,707

REIMPORTS

Automobiles (free from duty).....	41	48,073	25	33,419	195	271,736	128	180,235
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G. M. July Sales Totalled 67,362

Retail Business Exceeds Wholesale by 10,000 Units, Marking Stock Reduction

NEW YORK, Aug. 24—Sales of General Motors Corp. cars and trucks to ultimate consumers in July totaled 67,362 cars and trucks, against 60,836 in July, 1924. Sales to dealers by the manufacturing divisions totaled 57,012, against 40,563 in July, 1924. The 10,000 excess of sales to consumers as compared with sales to dealers meant a corresponding reduction in distributors' and dealers' stocks.

Both sales to dealers and dealers' sales to users were adversely affected on account of the new series of cars going into production.

Monthly Division Sales

The following tabulation shows monthly sales of General Motors cars by dealers to ultimate consumers and sales by the manufacturing divisions to their dealers:

Dealers Sales to Users			
	1925	1924	1923
Jan.	25,593	33,574	31,437
Feb.	39,579	50,007	33,627
Mar.	70,594	57,205	74,632
Apr.	97,242	89,583	105,778
May	87,488	84,715	90,327
June	75,864	65,224	75,423
July	*67,362	60,836	62,209
Divisions Sales to Dealers			
	1925	1924	1923
Jan.	30,642	61,398	49,162
Feb.	49,146	78,668	55,427
Mar.	75,527	75,484	71,669
Apr.	85,583	58,600	75,822
May	77,223	45,965	75,393
June	71,088	32,984	69,708
July	*57,012	40,563	51,634

*These preliminary figures include passenger car and truck sales in the United States, Canada and overseas by the Chevrolet, Oldsmobile, Oakland, Buick and Cadillac manufacturing divisions.

New Organization Takes Over Gillette Rubber Co.

MILWAUKEE, Aug. 26—Complete settlement of the affairs of the Gillette Rubber Co. of Eau Claire, Wis., and the taking over of the concern by a new organization has been announced. Officers of the new company are F. C. Hermann, president; W. R. Hutchins, vice-president; R. B. Gillette, vice-president, and I. B. Gilruth, secretary. The officers and S. G. Moon, William Kootz and John Rossi comprise the board of directors.

Negotiations for purchase of the old company began in April, 1924, but were not completed until August when the new company took over the plant from F. C. Hermann who was appointed receiver at the time when the company became involved financially.

Shortly after announcement of the reorganization of the company fire broke out in the bead department, causing loss of more than \$500,000, covered by insurance. The fire will not eliminate all production. Nine hundred men are employed in the factory, whose normal output of automobile tires is 2,600 per day.

Fisher Body Co. Starts Addition to Cost \$350,000

CLEVELAND, Aug. 27—The Fisher Body Co., has just finished a \$250,000 addition to its metal shop and is starting more construction costing about \$350,000. The company has 6100 men on the payroll. Since May, nearly 2000 men have been taken on by the Fisher Body Co., most of them on account of the Chrysler order which was received in the Spring.

The addition to the plant will be concrete and steel with 200,000 square feet of floor space, making about 1,000,000 square feet in the complete plant. The structure will be used to house body materials waiting to be worked up—steel, springs, leather, glass, hardware, textiles and trimming. For that reason it will not call for any great addition to the factory force.

Michigan Titles 20,046 New Cars During July

DETROIT, Aug. 26—The number of new cars titled in Michigan during the month of July totaled 20,046, 873 more than for July of a year ago. Wayne county had the largest number titled 7817, as compared to 5889 for July, 1924. The total up to August 1 was 122,124.

The increase in the number of trucks titled was 58, 1652 being titled during July, 1925, and 1594 for July, 1924. Of the trucks titled last month, approximately 1133 were of the same make.

Of the passenger cars titled, approximately 14,001 were cars listed at prices ranging from \$1,000 downward; 2821 at prices ranging from \$1,000 to \$1,500 and 3184 at prices ranging from \$1,500 upwards.

The lighter weight and lower price trucks far outnumbered the rest in the number titled showing the trend in this field.

DURANT PLANT ACTIVE

LANSING, MICH., Aug. 26—Production schedule at the Durant motor plant is giving no indication of a slow-down during the next few weeks, officials said today. Passenger cars are being sent out at a daily production rate of 225 to 250, and the company reports that this schedule has been maintained almost since it was established last spring. Orders continue to come in as fast as the cars are shipped, denoting consumption demand above the average for this time of the year.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co., second largest bank in America.

NEW YORK, Aug. 26—Further expansion was noted in trade activity last week, as a result of increased buying for the fall season. Improvement was reported in several sections of the West, where crops have been benefited by rains and high temperatures. Despite the increased activity, however, general commodity prices receded rather sharply.

The official cotton crop report based on condition Aug. 16 forecasts a yield of 13,990,000 bales, which marks an increase of 424,000 bales over the Aug. 1 estimate. Last year's crop amounted to 13,627,936 bales. Improvement was noted during the first half of the month in all States except South Carolina, Alabama and Arkansas. Cotton ginned prior to Aug. 16 totaled 577,981 bales, as against 135,901 in the corresponding period last year.

Another high mark for the year was reached by car loadings in the week ended Aug. 8. The total of 1,051,611 compares with 1,043,063 in the preceding week, 942,198 a year ago, and 973,750 two years ago.

Surplus stocks of copper in this country at the end of last month amounted to 88,088 tons, the lowest figure since the close of the war. Shipments reached new high records during the first seven months of the year. Since the first of July the price has advanced more than a cent a pound.

Cement production reached a new high record last month, amounting to 15,641,000 barrels, and comparing with 15,387,000 in June. Shipments, which totaled 18,131,000 barrels, also marked a new peak, while stocks were the lowest since the end of last December.

Business failures reported to Bradstreet's for the week ended Aug. 20 numbered 311, as against 274 in the preceding week and 319 a year ago.

Bank debits to individual accounts reported to the Federal Reserve Board for the week ended Aug. 19 are 4 per cent larger than the total for the preceding week and 17.3 per cent above that for the corresponding period last year.

Fisher's index of wholesale commodity prices stood at 158.7 last week, as against 160.6 in the preceding week and 161.4 two weeks earlier. The wholesale price index of the Department of Labor for July is 159.9 as compared with 157.4 for June and 155.2 for May.

Call money continued easy last week, ruling at 4 per cent throughout. Time loan rates were fractionally firmer at 4½ to 4¾ per cent, while commercial paper rates were unchanged at 4 to 4¾ per cent.

Akron's Tire Output at 135,000 Daily

Set New High Record; Tube Production Reaches 165,000 Per Day

AKRON, OHIO, Aug. 27—Approximately 135,000 automobile tires and 165,000 inner tubes are now being manufactured every day in the Akron district. This is a new high record for all time, and compares with about 115,000 tires being manufactured three months ago and an average of between 95,000 and 100,000 last year.

Large orders on hand at present will enable most of the tire manufacturing companies to run practically at capacity schedules through September and possibly November. About the middle of October they can begin preparing shipments for spring delivery, so it doesn't look as if there will be any serious curtailment of production, even two months hence.

Although American manufacturers will pay more than \$300,000,000 for their crude rubber this year, compared with \$174,361,427 in 1924, four price increases in tires and tubes have helped to counteract the rising cost of raw materials. Nearly 200,000 tons of rubber was used in this country during the past six months, against a consumption of 330,000 tons in 1924.

A survey of the larger tire manufacturing companies in Akron shows they are all operating at practically capacity levels. Twenty-four hour schedules are maintained, with three eight-hour shifts of workers employed. Few new men are being hired, owing to stabilized conditions and small turnover in the labor department.

Blames Speculations and Production for Tire Costs

AKRON, OHIO, Aug. 27—A new viewpoint in the so-called rubber war, which has aroused nation-wide interest, is presented by W. E. Fouse, vice-president of the General Tire & Rubber Co., who says that increased consumption of rubber in this country and wild speculation by importers, dealers and others were the principal factors in boosting the price.

He defends the British and their Stevenson restriction act.

"We have no quarrel with the British," declared Mr. Fouse. "They are not trying to put the screws on us. The rubber growers have had many lean years, and they are entitled to make a profit. We must remember, too, that Great Britain is paying us \$500,000 a day on its war debt, something no other country has offered to do."

Fouse admits the Stevenson act, which limits exports of rubber from British plantations, should have been more flexible, but asserts it was the salvation of the rubber growing industry.

GIANT SEARCHLIGHT AT FORD AIRPORT

DETROIT, Aug. 26—The giant searchlight mounted on the roof of the Ford Airport at Dearborn is one of the most powerful in use for aid to airplanes at night and in fog. It casts a beam of light more than 100 times as powerful as the average lighthouse and can be seen for 80 miles.

The searchlight proper is in a cylinder about three feet long with a glass lens at one end and a concave mirror reflector at the other. The plane lens, which throws a concentrated shaft of light, may be replaced by a dispersion lens which spreads the rays over an area one-quarter mile wide by one-half mile long, illuminating the landing field as if it were day.

The shaft of light is approximately 450,000,000 candlepower—more than the amount of light that could be produced by the headlights of all the Fords now in use.

Air Reduction Sales Co. Buys Gas Tank Recharging

NEW YORK, Aug. 26—The Air Reduction Sales Co., New York, has purchased the assets and assumed the liabilities of the Gas Tank Recharging Co., incorporated in 1913. The Gas Tank Recharging Co. owned and operated acetylene plants at Milwaukee, Wis., and Bettendorf, Iowa; and a carbide plant at Keokuk, Iowa, where they manufactured Sun-Lite brand carbide.

The manufacture and distribution of Aircor-National Carbide will be increased by the acquisition of the Keokuk plant, guaranteeing to consumers in the Mid-Western territories a carbide of high quality as maintained by National Carbide produced at the Ivanhoe plant.

The Air Reduction Sales Co. is the largest manufacturer of oxygen and acetylene, carbide and welding and cutting apparatus in the world. The products are distributed through 148 distributing stations.

NEW SPEEDOMETER FOR FORD

FLINT, MICH., Aug. 26—The AC Spark Plug Co. has brought out a speedometer installation for Fords equipped with Ford wire wheels. The AC direct drive is a feature of this installation, the only change from the wood wheel job being that a special road wheel gear is furnished. To install, it is necessary only to drill three holes in the wire wheel hub flange, using a template furnished with the equipment. Three short bolts, also furnished, hold the road wheel gear in position.

The price of the installation, which is packed in a carton marked "For Ford Wire Wheels," is the same as for the wood wheel equipment.

Coolidge Approves Proposed Air Lines

Senator Bingham Will Introduce
Bill Authorizing Indirect Subsidies for Aviation

WASHINGTON, Aug. 27—President Coolidge favors a program to establish commercial aviation on a definite basis in the United States and Senator Bingham (Republican, Connecticut), will introduce a bill in Congress providing indirect subsidies for commercial aviation.

This announcement came after Senator Bingham conferred with the President at Swampscott, following an inspection of army air stations, aviation facilities and proposed air routes over the country and extending to Alaska. The Senator reported that dirigibles such as the Shenandoah and Los Angeles are not practicable for service over land in competition with established carriers.

Accordingly, he recommended the creation by Congress of a Bureau of Air Navigation in the Department of Commerce. He would establish a nationwide arrangement of lighthouses for airplanes; Federal inspection; daily broadcasting of weather reports; examination of pilots; and the compilation of authentic charts and information.

President Coolidge remained in seclusion with Senator Bingham for more than two hours, indicating his interest in the subject. Bingham is the only air pilot in the Senate and he draws a mental picture of an elaborate airway system of commerce and travel between cities and even across the ocean.

There is no money available now for such a system, but Senator Bingham is confident that with the President's support a bill providing for complete facilities would be favorably received in the House.

France Has 37 Aerial Commercial Routes

WASHINGTON, Aug. 25—With 37 aerial lines running on regular schedules, commercial aviation has made considerable progress in France since the War, it is set forth in a statement issued by the French Bureau of Information in the United States.

"At the present time," says the statement, "there are in France and in North Africa: 1 main port, 2 secondary ports, 19 stations, 23 emergency landing grounds, 7 bases and 1 seaplane port. A scientific coordination of all aviation services and also improvements in industrial methods have given very good results. Aerial transportation is now no less secure, and just as regular, as any other. The percentage for punctuality for the whole year is as high as 98 per cent. Accidents are less and less frequent."

Coming Events

SHOWS

- Sept. 8-11—New Haven, Mason Laboratory, Yale University Machine Tool Exhibition, direction of Amer. Society of Mech. Eng., Chamber of Commerce and Yale Mechanical Engineering Department.
- Sept. 14-19—Cleveland, Public Auditorium, Annual Convention and Exposition, American Society for Steel Treating, W. H. Eisenman, secretary.
- Sept. 21-26—London, England, Annual Cycle and Motorcycle Show under auspices of the British Cycle and Motorcycle Manufacturers and Traders Union, Ltd.

- Sept. 28-Oct. 3—Chicago, Fourteenth annual Safety Congress and Exhibit, Rainbow Room, Hotel Winton, under direction of National Safety Council, A. M. Smith, business manager.
- Oct. 5-9—Atlantic City, Young's Million Dollar Pier, Manufacturers' Exhibition in connection with American Electric Railway Association Convention.
- Oct. 8-17—London, Olympia passenger car show.
- Oct. 18-31—Salonica, Greece, First International Sample Fair.
- Oct. 29-Nov. 7—London, annual truck show.
- Nov. 26—Dec. 6—Berlin, Germany, Annual Automobile Show in the Kaiserdamm.

CONVENTIONS

- Sept. 14-19—Cleveland, Public Auditorium, Annual Convention and Exposition, American Society for Steel Treating.
- Sept. 14-17—Automotive Electric Association, Forest Inn, Eaglesmere Park, Pa.
- Oct. 5-9—Atlantic City, Young's Million Dollar Pier, American Electric Railway Association.
- Oct. 7-10—Montreal, Motor and Accessory Manufacturers Association Convention.
- Oct. 21-23—Boston, Fall Meeting, American Welding Society.

RACES

- Sept. 7—Altoona, Pa.

- Sept. 19—Syracuse, N. Y.
- Sept. 30—Fresno, Cal.
- Oct. 10—Baltimore-Washington Speedway, Laurel, Md.
- Oct. 12—Salem, N. H.
- Oct. 24—Charlotte, N. C.
- Nov. 26—Los Angeles.

S.A.E. MEETINGS

National

- Aug. 27—Hotel Commodore, New York, Motorboat Meeting.
- Sept. 15-16—Cleveland, Production meeting and exhibition.
- Nov. 12-13—Philadelphia, Automotive Transportation meeting.
- Nov. —Service Engineering meeting.

California Dealers Rap Reckless Credit

Charge That Irresponsibles Are Hurting Legitimate Estab- lished Business

LOS ANGELES, Aug. 26—An indictment of what is described as "reckless credit extension" by many manufacturers and distributors of automotive equipment, accessories and replacement parts, is presented in a bulletin recently issued by the Southern California Automotive Dealers' Association and the Los Angeles Automobile Trade Association. It is held by the executive officers of these bodies that established automotive businesses are being disrupted by the ease with which irresponsible individuals can obtain equipment and merchandise, and continue in business, without possessing the requisite capital to justify the credit allowed them.

Score "fly-by-nights"

The associations charge that there is a veritable army of fly-by-night operators of automotive establishments of various kinds who get started in the automotive business, and stay in it for periods of varying duration by "the extension of credit entirely unwarranted, and by the apparent willingness of competitors of the distributor or manufacturer who opened the account to continue holding the sack just as soon as the account proves itself worthless to the party originally financing it." The bulletin continues:

"Somebody Pays Bills"

"In summing up the situation we are brought face to face with the realization that somebody does pay those bills, and then to the painful realization that the manufacturer, distributor or jobber who fosters and assists these accounts is actually in competition with his customer who discounts regularly. This matter cannot be looked at in any other way. A manufacturer, distributor or jobber opening an account which is not in a position to finance itself for at least 90 days, and who

AMERICAN CARS IN RUSSIAN TRIAL RUN

WASHINGTON, Aug. 26—In the 3000-mile international automobile trials which began in Russia Aug. 9 and will continue through the early part of September, American manufacturers hold first place in the number and variety of machines represented, according to advices received by the Russian Information Bureau in Washington. The makes of American motor cars, trucks and motorcycles represented include Lincoln, Packard, Buick, Dodge, Cadillac, Pierce-Arrow, Nash, Hudson, Chrysler, Ford, White, G. M. C., Mack, F. V. D., Indian, Harley-Davidson, Henderson and Excelsior.

Germany has second place in the competitions, displaying, particularly, heavy trucks and special machines. The principal makers of France, Italy and Austria are also represented, but English manufacturers displayed little interest in the competition and only a few English firms entered. In all nearly 100 motor cars, fifty trucks and eighteen motorcycles are competing.

extends credit to a concern which has proved by its past record that it is not able to discount its bills, is actually in competition with his choicest customer, the man who does discount promptly. And the time is coming when the automotive merchant who is seriously engaged in erecting a business in the automotive industry will be compelled to ask the manufacturers, distributors and jobbers of the commodities which he handles just who they want to do business with—the fly-by-nighter, the cut throat artist, the discount salesman, the here-today-gone-tomorrow dealer, or the responsible merchant with an established reputation. Nobody can compel the manufacturers, distributors and jobbers to adopt sane business methods in respect to credit extension, but the responsible automotive merchant can most assuredly convince them that they must make their choice as to which class of trade they want to do business with."

British Rubber Men Protest High Prices

Issue Manifesto Attacking Ste- venson Act as Unfair Measure

LONDON, Aug. 17 (By Mail)—A group of British rubber manufacturers has issued a manifesto of protest at being forced to purchase raw rubber at high prices. The gist of this protest follows:

The Stevenson Scheme was formulated by a committee of rubber plantation interests. The conduct of the scheme since its inception has been largely in the hands of planters, and in our opinion the undue influence of financially interested parties in the legislative functions of the Colonial Office is greatly to be deprecated.

Predict Great Shortage

Our opinion is that the Stevenson Scheme unmodified will result in: (1) a growingly acute shortage of supplies for a few years which will be naturally gradually terminated by (2) great supplies from countries outside the Empire from estates financed by foreign interests.

We would suggest that the interests of employment at the present time of industrial stagnation is sufficient to warrant an imperative call on the part of the electorate for the Colonial Office to modify the Stevenson Scheme of the restriction of rubber exports from Malaysia and Ceylon, by the introduction of expeditious amendments to the scheme to carry out the expressed intention of the legislature, viz.: a stabilized price for rubber at 1s. 3d. per lb.

The present price of rubber is 3s. 7½d. per lb., and tire prices have advanced a further 15 per cent this week.

CANADIAN RUBBER UP

TORONTO, Aug. 27—Advanced rubber prices are again to the fore, this making the fourth increase within the last two months on auto tires and tubes. All sizes are affected this time and the increase approximates 15 per cent. Quantities of cut-rate tires and seconds in the market are acting as a resistant to further raises to higher levels. Many of the dealers have considerable stocks on hand purchased at lower prices than are now being quoted.

AUTOMOTIVE INDUSTRIES

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Insurance Men Continue to Bombard Chrysler and G. M. Plans

Little disposition shown, however, to examine case of the automobile manufacturers on its merits. Chief attacks on Chrysler system based on charges that it is illegal.

By John C. Gourlie

EVER since the Chrysler finance plan, with its unusual insurance features, became generally known, the heavy siege guns of the insurance interests have been trained upon it. This verbal artillery has been fired from time to time with a menacing roar, but the projectiles, if any, have done surprisingly little damage.

Some of the points raised against the Chrysler plan and against others in the automobile insurance field, were considered in a previous article. Since then the objections have been reiterated with augmented vehemence but little that is new has been brought into the light where it could be discussed.

The surprising fact is that there is little disposition to examine the case of the automobile manufacturers on its merits, and to determine whether there may not really be something wrong with the present handling of automobile insurance. This inquiry, one might think, would be valuable to the insurance interests—might help them to revise their methods and practices and thus steal the thunder of their critics.

But no, the one big point, the idea that is driven across in columns of insurance magazine type and in the statements of executives and association managers, is

that the Chrysler plan is illegal. To which the answer, of course, is—"What of it?"

There is no escaping the fact that the Chrysler plan is facing formidable opposition from the established insurance interests and in many cases from State insurance commissioners. But it is the Federal Courts which will finally determine the legal points at issue, and no amount of arguing pro and con outside the courts is likely to affect the case.

The essential point in the insurance controversy is not the legality of the Chrysler plan; it is the determination of car manufacturers to put an end to the evils they see in the current system of finance

and insurance and to establish fair and uniform delivered prices of their products, a purpose which involves control over insurance and financing rates.

It is a foregone conclusion that these ends will be obtained in some manner or other, and the fate of the Chrysler plan, as originally drawn, will not affect the end but merely the means. This is the situation the insurance interests might as well face now as later on.

In *Automotive Industries* of July 16 the following statement was made:

"Regardless of legal quibbles, the Chrysler

September Business Survey

HIGHLIGHTS of the automotive production and sales situation, at the opening of the Fall season, are as follows:

2. The trend of production is downward, but output is still at an unusually high rate for the season.

3. August sales were somewhat affected by the failure of factories to meet the demands of their dealers for the new model cars.

4. The industry is basically sound, with stocks at probably a record low point.

5. Buying is excellent in the industrial and agricultural regions, but mining areas are affected by strike prospects.

In addition to the regular news section, *Automotive Industries'* monthly survey of sales and production will be found beginning on page 388 of this issue.

plan or any other instituted by motor car manufacturers will be successful in the long run if it gives the public satisfactory insurance at a minimum rate and enables people to buy automobiles and insurance protection at a lower cost than otherwise would be possible."

The reply of the editor of the *Insurance Field*, in the Aug. 6 issue of that publication, is typical. He finds the statement "fairly founded in ordinary business sense, but in ignorance of the laws and practices concerning insurance. The car makers . . . can have the present State laws in 48 commonwealths changed to suit them. This will take some time. It may take a life time. Insurance laws were not devised to expedite the sales of automobiles, but to regulate contracts of protection. There is over a hundred billions of property insurance covered by them—far more than the automobile industry provides. States will scarcely remodel the whole dog to suit the tail."

Two Sides to Question

The premature assumption that the courts will hold the Chrysler plan illegal may be passed over. The ruling of the Attorney General of Alabama that Chrysler dealers selling cars with insurance attached cannot be regarded as insurance agents and therefore may not be required to take out licenses as such is sufficient to show that there are two ways of looking at this question, which is the fundamental contention of the Chrysler counsel and the point around which most of the legal struggle is being waged.

What strikes most forcibly the observer ignorant of the laws and practices governing insurance is the belief, firmly grounded in the opinion of insurance men, that there is something sacrosanct about the laws and especially about the practices. If the laws are in the public interest—and this point will hardly be disputed—then practices that are also in the public interest can be made to fit them. This is, after all, what car makers and their financing and insurance allies are trying to do—and what they will do.

Standpatters in the business world are bound to get into difficulties, and probably nowhere can one find more of the spirit of moss-covered reaction than in some parts of the insurance world. Heretics within their own ranks are as promptly consigned to the stake by many insurance men as are the outsiders who venture to question the value of the venerable "practices."

Plans Viewed Differently

This is aptly illustrated by the reception accorded the Chrysler plan and the General Motors plan. The Chrysler idea was promptly banned as unconventional, although it did employ brokers and underwriters already established. The General Motors arrangement eliminated the old insurance companies, but it was received almost in a friendly spirit, because the new company formed by General Motors was along conventional lines.

As a matter of fact, the established insurance companies apparently have more to fear from the General Motors way of operating than from the Chrysler method. They are out of the picture in the first instance and can remain in the second.

It will probably be said that the opinions expressed here regarding the attitude of insurance men are colored by the interests and prejudices of car manufacturers. But confirmation from a disinterested source may be found in an article by Edwin Dakin published in *Commerce and Finance* of Aug. 19. He regards the legal objections as minor issues; "for whether the detail of any particular plan is finally held by the courts to

be legal or not, the principle of the automobile manufacturer providing insurance for his customers at reduced rates is in itself legally sound.

"It does not appear that those who oppose the movement have the weight of argument on their side. All the elements of public interest seem to substantiate the soundness of the manufacturer's position. Economies in automobile insurance costs certainly can be effected by closer supervision and selection of risks; and if the insurance agent cannot serve the automobile buyer as efficiently and as cheaply as the manufacturer can through direct contact he does not appear to serve any legitimate purpose in the scheme of things.

"No present method of doing business is sacred. Certainly the insurance agencies are no sacred things established to be unchanged forever more. The whole business of insurance, together with its principle, is yet young enough as far as years go, to be capable of tremendous development. We are apparently on the threshold of a development of automobile insurance. It is safe to predict that when all is settled into common practice, it will be found that the insurance agent, the underwriters and all concerned still enjoy a real and proper field for their activities. It would, therefore, be far better if everyone would accept a development which is inevitable and adjust his activity to the new order of things as quickly as possible."

Another Opinion Expressed

Again, the *Industrial Digest*, in its September issue, will say:

"Of the cost of insuring a car a large part is collected to cover agents' acquisition expenses. It is perhaps true that the agents do not always receive the full commission. Part of it is dissipated by rebates and allowances, often contrary to law, which the agent must make to the dealers, or the financial agent, in order to hold the business.

"The agents and the companies may find food for thought along these lines. If they are to curb what to them is held to be an invasion upon their legitimate business, they can make concerted efforts towards rate reduction, cutting costs by more uniformly lower commissions and less wasteful competition in both the fire and theft and liability lines. This would go far toward accomplishing real economy to car buyers and users. Lower insurance premiums would make it less advantageous to automobile companies to issue insurance as a mere accessory to a car. Will this be done?"

Probably not, if one is to judge the temper and purposes of the underwriters from their published statements and from the comment of their organs of opinion. A long and thorough search is required to find admissions that there can possibly be anything needing revision in current insurance methods.

"Cheating is Common"

However, in the *National Underwriter* of Aug. 13 there appears the statement that "In the large cities 'cheating' is common. Excess commissions for automobile business are being paid by any number of companies." These commissions, it is declared, run as high as 35 per cent. In view of this, the oft-repeated complaint that "there is no money in automobile insurance" appears in a rather significant light.

Some more soul-searching is indulged in by a correspondent of the *Insurance Field* in its issue of Aug. 20. Says C. H. Genter:

"I am of the opinion that notwithstanding the objections advanced by the insurance agents, the courts will

Not recognize any objectionable features in the scheme. It is the outgrowth of modern business and competition in the trade. In various forms it makes its appearance in the General Motors Co.'s selling, and other manufacturers, endeavoring to meet a trying situation in their selling end, will, no doubt, follow suit.

"The insurance companies are laboring with the obsession of building up 'fleet premiums,' and the limits to which they go is interesting. Adjacent to Scranton are a number of mining towns, largely populated by people of foreign birth, whose grasp of American methods is still in embryo. These people are being deliberately 'oversold' on fire insurance, as every fire loss clearly shows. Not only do the companies paying these losses know it, but they continue the practice by holding on to the agents who father the scheme.

"This may be a good way to build up volume, as it brings in twice the premium that should be legitimately collected, but why, in face of the game being played, do the same, high-class stock companies, through the National Board of Fire Underwriters, continue the magazine and newspaper campaign about the 'awful fire waste in America,' in hope the American public will support them and believe them honest?

"The men who pay these extraordinary fire premiums will, sooner or later, recognize they are being swindled, and a reaction will surely set in.

"In all good taste, why pick on the other fellow who has problems of his own?"

The Matter of Service

Aside from the question of legality, the criticism most often made of the current efforts of motor car manufacturers to solve the insurance problem involves the matter of service. The purchaser, it is held, will not have the benefit of the efficient adjustment bureaus organized by the regular insurance companies. But the first object of the automobile men in organizing these new projects was to build up good-will through consumer satisfaction and it seems hardly logical to assume that the important matter of service will be overlooked. That would be bad business indeed.

A specific criticism of the General Motors plan is expressed by a writer in the *Eastern Underwriter* of Aug. 21.

"Is this in the public interest?" he asks. "We think not. It is a matter of common experience that an insurance corporation, the same as a bank, does not thrive if it is entirely subservient to one interest. There will be too many temptations to make the investments of the insurance company serve the interests of those engaged in the main and larger enterprises; too many temptations to base the rates of the insurance company not upon experience alone, but in accordance with the sales policy of the manufacturers. Moreover, it is not in the best interests of the insurance companies or the general public that such substantial groups of insurance business should be segregated from other insurance where they would help to diversify risks and standardize rates for the common good."

This is another objection predicated upon bad business judgment. If the insurance people believe that the General Motors Corp. will err in this respect, there is no particular reason for trying to disillusion them.

Not in the Public Interest

All these words of criticism are typical of the almost hysterical state of the insurance mind. A real counter-offensive, employing deeds and not words, has been started by just one company, so far as is known now. The Hartford Accident & Indemnity Co. has boldly invaded the precincts of the financing companies and offers to act as the financial agent of the dealer or purchaser, securing loans from banks on the sale of cars. The Hartford does this through its facilities as a surety company, guaranteeing the bank that the purchaser's note will be paid. The insurance company also supplies fire and theft cover.

Whether the purchaser actually saves anything under this arrangement as compared with the time-honored methods is hard to determine, as the Hartford company has not published its rates. It is apparent, however, that the purchaser must pay for the insurance company's service as well as for the bank loan. If substantial saving can be demonstrated under this innovation, it is likely that automobile companies will approve it. Strange as it may seem to outsiders, they have not gone into financing and insurance with the expectation of immediate cash returns.

We Consult an Authority

IT would be a foolish stunt for a man to build a house without an architect to choose the materials and accept the responsibility.

It would take a lot of time—the house would not be much good, so we wisely employ an architect and put the job up to him as the authority.

It would be foolish for the car owner to take the responsibility for things which go in and on the car without consulting his ser-

vice station or dealer, so most car owners consult the dealer because he is supposed to know.

There are some people who build their own houses, but they are a small minority.

There are some car owners who buy their own stuff without consulting the dealer, but they are a small minority. Most of us consult the nearest authority.

Reaching the trade through the trade press is reaching the user through his authority.



Gold Cup Race—Miss Tampa (G 10), placed second in the race, is leading, followed by Nuisance (G 9), which set a new speed record of 49 miles per hour. Miss Columbia, former holder of speed record, is third and Baby Bootlegger, winner of Gold Cup this year as well as in 1924, brings up the rear

Packard-Engined "Baby Bootlegger" Again Wins Boat Classic

Second straight victory for Caleb Bragg in Gold Cup Contest. New speed record of 49 m.p.h. set by Col. Vincent. Three boats finish.

By K. W. Stillman

AT Manhasset Bay, Long Island, last Saturday (Aug. 29), Baby Bootlegger, owned and driven by Caleb Bragg, repeated its performance of last year at Detroit by winning the Gold Challenge Cup, the most sought after trophy in the motor boat world. Nuisance, owned by Mrs. Delphine Dodge Cromwell and driven by Col. J. G. Vincent, set a new speed record for boats of the Gold Cup class by winning the first heat with a speed of 49 miles per hour. Both boats were equipped with Packard Gold Cup engines.

Nuisance won the first heat after Baby Shadow, equipped with a Wright engine, developed trouble during the last lap which put her permanently out of the race. Baby Bootlegger was second, Impshi third, Miss Columbia fourth, Miss Tampa fifth and Baby America II sixth.

Four Finish Second Heat

In the second heat only six of the original nine starters lined up for the gun and only four finished. Baby Bootlegger won, with Impshi second, Baby America II third, and Miss Tampa fourth. In the third heat there were only four starters, one of which did not finish. Miss Tampa won this heat with Baby Bootlegger second and Baby America II third.

A point system of scoring these races was used and the order of placing was Baby Bootlegger first, Miss Tampa second, and Baby America II third. These three boats were the only ones to finish all three heats.

The Packard Gold Cup engine with which Baby Bootlegger and Nuisance were equipped, is a six-cylinder water cooled engine developing 225 hp. at 2000 r.p.m. It has a 5 $\frac{3}{8}$ in. bore, 4 9/16 in. stroke, and piston displacement of 621.17 cu. in. Compression ratio is 6 $\frac{1}{2}$ to 1.

The crankcase is an aluminum box section split on the

center line of the crankshaft. Reverse gear is in unit housing to provide continuous bed plate for greater rigidity. Crankshaft is machined all over, has seven main bearings and is balanced statically and dynamically. A specially designed "Joes gear" is used and the forward clutch is multiple disk type with pressure lubricated toggle engagement.

Water is pumped through jacketed exhaust manifold before entering cylinders. A dry pump supplies oil under variable pressure to all working parts. Battery-generator type ignition is used with two independent Delco circuits to insure utmost reliability and maximum power. A Bijour electric starter working through a Bendix drive having a 15 to 1 reduction provides high torque for starting. Twelve volt battery and generator are used, the latter being of third brush regulating type. Carbureter is Stromberg type NA-YS with screened air inlets and accessible gasoline strainer.

The cylinder barrel, head and jacket are individual steel assemblies. The valve ports are formed in an aluminum housing extending over all six cylinders.

This motor is primarily a single bank of the Packard No. 1500 V type aviation engine.

Forced Out While in Lead

The Baby Shadow, which was leading all during the first heat until part way around the last lap when it was forced to retire, had a Wright Gold Cup engine.

This is a 90 degree V-type 8-cylinder engine with 4.4 in. bore and 5.1 in. stroke having a total piston displacement of 624 cu. in. The cylinders are divided into two blocks of four-cylinders each and are of aluminum equipped with steel liners within which the pistons travel. Cooling water is carried in the aluminum jackets and does not come in contact with the steel linings. Each

cylinder is fitted with two large tulip shaped silchrome steel valves seating in aluminum bronze rings. The pistons are of the thick head aluminum type provided with three compression and an oil scraper ring.

The crankcase is also made in two sections. The 2¼ in. crankshaft is supported by both upper and lower crankcase and has a bearing between each crank throw. Connecting rods are tubular and have big-end bearings of a special material without babbitt. Wrist pins are large and full floating in the piston as well as in the upper end of the connecting rods.

A single cam shaft carried on top of each cylinder block with cams acting directly on top of the valves is used. All parts of the powerplant are lubricated automatically under 100 lb. pressure. The cooling system uses either fresh or salt water, which is pumped through the jacketed exhaust manifolds before entering the cylinder blocks.

One dual type Stromberg carbureter supplies fuel to all cylinders, a gear type pump furnishing proper supply of fuel to the carbureter. Two Splitdorf 8-cylinder magnetos supply ignition current. The reverse gear consists of a multiple disk clutch and planetary gearing for reverse all enclosed in an aluminum housing and pressure oiled.

Compression ratio is 6.5 to 1. Rated horsepower is 260 and its weight 850 lb.

The Curtiss Engine

Curtiss Wilgold II, which was put permanently out of commission during the first heat, was equipped with a Curtiss marine engine which is a modified form of the Curtiss Model C-6 aviation engine designed for commercial aviation purposes. It is a six-cylinder engine developing over 280 hp. at 2800 r.p.m. Its bore is 4-21/36 in. and its stroke 6 in., giving a total piston displacement for the six cylinders of 613 cu. in.

The crankshaft is carried on seven bearings. Overhead camshafts are used, intake and exhaust shafts being separate. There are two inlet valves and two exhaust valves per cylinder which are operated by the camshafts. The camshaft is driven from the crankshaft through a train of bevel gears.

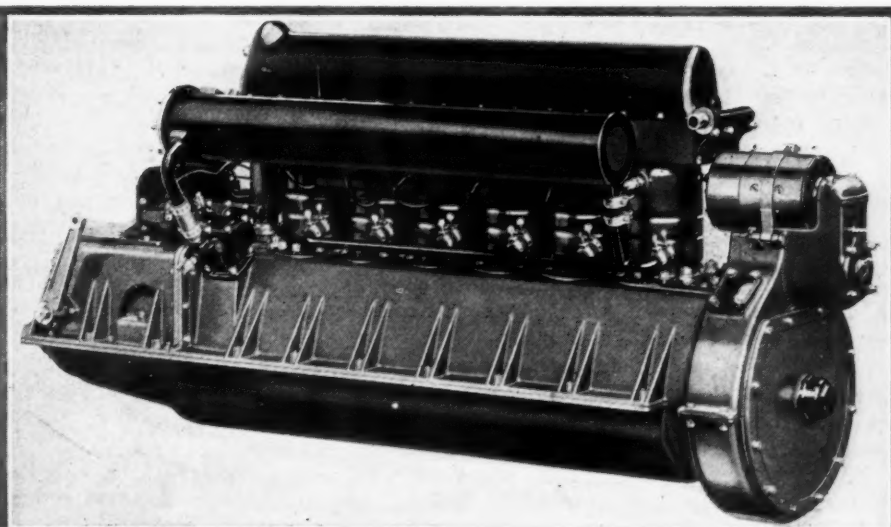
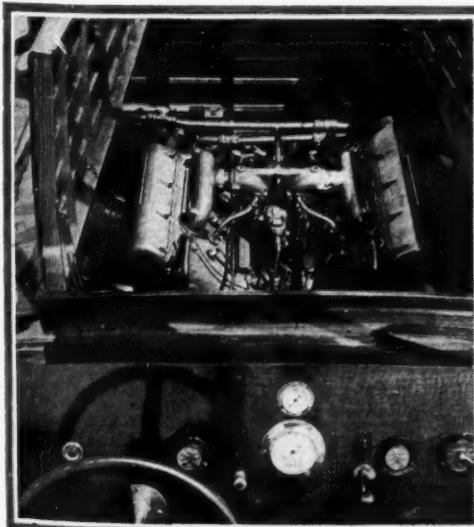
Ignition is by two six-cylinder Splitdorf magnetos which provide sparks for two plugs in each cylinder. A single Stromberg carbureter of special design is used. The intake manifold is waterjacketed.



COL. J. G. VINCENT (above) set a new speed record for boats of the Gold Cup class when he piloted the *Nuisance* over the course at 49 miles an hour. As vice-president in charge of engineering of the Packard Motor Car Co., he is an outstanding figure in the automobile industry. Below is Caleb Bragg at the wheel of *Baby Bootlegger*, in which he has won the Gold Cup classic two years in succession. Mr. Bragg also is well known in the automobile field. A number of years ago he was a driver of racing cars and now is president of the Bragg-Kliesrath Corp., which manufactures the B-K vacuum booster brake

In general design this engine is similar to the 12 cylinder aviation engine made by the Curtiss people.

Baby America II, Gar Wood's entry, which took third in the race, was powered by two Miller engines. Restrictions on engines for Gold Cup Race entries prohibit more than 625 cu. in. total piston displacement. These



At left—The Wright Gold Cup engine installed in the *Baby Shadow*, Carl Fischer's entry in the speed contest. Right—Exhaust side of the Packard Gold Cup model. An inlet side view of this engine was shown in *AUTOMOTIVE INDUSTRIES* of August 20

two engines were very small so that displacement was within the prescribed limits but it was expected to obtain greater speed than is possible with a single engine.

Motorboat Standardization Discussed by S. A. E.

AT the annual Motorboat Meeting of the S. A. E., held Thursday evening, Aug. 27, at the Commodore Hotel, C. A. Carlson, president of New Jersey Motors, Inc., and second vice-president of the Society, presided and offered the problem of standardization as the most important one before the motorboat industry at present. He compared the present state of the industry with that of the automobile industry a decade ago and suggested that closer cooperation was needed between motorboat body and engine builders and the Society if the benefits of standardization were to be obtained.

R. E. Manley, president of Manley Mfg. Co., said that the immediate problems before marine engine builders are similar to those confronting the makers of automobile engines, such as providing greater reliability and accessibility, lower first cost and maintenance expense, and greater fuel burning efficiency. It was his opinion that the problem of reliability is very closely connected with lubrication and that the most effective method of increasing this factor is to improve engine lubrication. Inasmuch as most of the trouble through faulty lubrication occurs when the engine is started he believed that marine engine builders might more easily overcome present difficulties than makers of automobile engines.

Irwin Chase, general manager Elco Works, Electric Boat Co., spoke of some of the steps already taken toward standardization of cruiser type boats. He credited much of the success in marine engine practice to the lessons learned through automobile engine design. The reliability and efficiency of present marine engines is particularly advantageous since it aids greatly in popularizing motorboats and Mr. Chase believes that only when large production makes possible low costs can standardization be attempted with any considerable degree of success.

Wider Use of Hydroplanes

H. Fauber predicted that the hydroplane type of boat would be used extensively in the future for runabouts and light cruisers as well as for racing craft. This prediction was based on the belief that the hydroplane principle provided a more stable and seaworthy boat than the displacement type as well as adding about 15 miles per hour to the attainable speed. He favors the multi-step type as being more seaworthy than the single step and suggested decreasing the length and depth of the steps to overcome the common objection to multi-step boats that the steps tend to drag. He believes that the use of bodies of metal such as duralumin will come into greater favor as furnishing more strength and preventing leakage and absorption of water by the hull.

G. T. White, editor of *Rudder*, gave several instances from his own experience bearing out Mr. Fauber's statement that hydroplanes are safe and stable in the water even at high speeds.

F. R. Still, chairman of the New York Gold Cup Committee, presented an interesting history of the Gold Cup Races and of the American Power Boat Association under whose auspices they are held. The Gold Cup was offered as a racing trophy by the Columbia Yacht Club of New York and was first raced for in 1904. The race

at that time was unrestricted and the first winner attained a speed of about 20 miles per hour. Each year thereafter the speed increased until in 1920 Gar Wood won it with a speed of 70 miles per hour. In 1921 the entries were restricted to craft not less than 25 ft. long, having engines of not more than 625 cu. in. total piston displacement and only boats of the displacement type could compete.

Last year in Detroit, Baby Bootlegger, owned by Caleb Bragg, won the trophy. Miss Columbia, owned by a syndicate formed in the Columbia Yacht Club, established a new world's record for boats of this type with a heat at 46.8 miles per hour, but a series of accidents kept it from winning the trophy. The Baby Bootlegger ran under the Columbia Yacht Club's flag which made that club defender of the trophy this year.

In 1922, the first year of racing under the new rulings as to boat and engine size, the speed of the winner was 40.6 miles per hour, in 1923, 45 m.p.h., and in 1924, 46.4 m.p.h.

Racing Engine Specific Output

INTERESTING data on the output of racing engines were presented to the World Power Conference in London by Signor Agnelli of the Fiat firm. He made the statement that the specific output of an internal combustion engine increases in direct proportion to the piston speed. As late as 1914 the maximum output of racing engines was only 28 hp. per liter (61 cu. in.) at about 3200 r.p.m. maximum. This limit has now been doubled by raising the speed limit to about 5000 r.p.m., corresponding to a piston speed of 6500 ft. per minute.

A second equally important factor in connection with the increase in output is the increase of the mean effective pressure. By using a supercharger the Fiat Works in their latest tests have been able to get 70 hp. per liter displacement; that is, 140 hp. from a 2 liter (122 cu. in.) engine. Signor Agnelli thinks that in view of the properties of the fuel now available and because of thermodynamical considerations it will not be possible to materially surpass present piston speeds and compression pressures.

LECTURING on rustless iron before the Manchester Association of Engineers, H. S. Primrose said that quite recently a new process had been evolved whereby mild stainless steel could be produced more cheaply than by the methods previously in use. The future of commercial development and wide engineering application undoubtedly lay with the low-carbon alloys containing chromium. The great hindrance hitherto to the rapid progress of commercial expansion had, however, been the high cost of production of such steel. With the new Hamilton-Evans process, chrome ore and ferrosilicon were used, which were both comparatively cheap and easily obtainable commodities. The cost of producing mild stainless steel in ingot form by the ferro-chrome process was about £65 per ton, but by the new process ingots were made at £30 per ton. Mr. Primrose also said that castings in mild stainless steel were now being produced on a commercial scale, and that those castings, when descaled by sand blasting and pickling, were rustless without polishing.

THE Swedish Government has passed a bill providing for a reduction in the tariff duty on automobile parts not specially enumerated in the tariff. So far these have been subjected to duty as manufactures of metal, usually 25 per cent, but under the new ruling the duty is only 10 per cent.

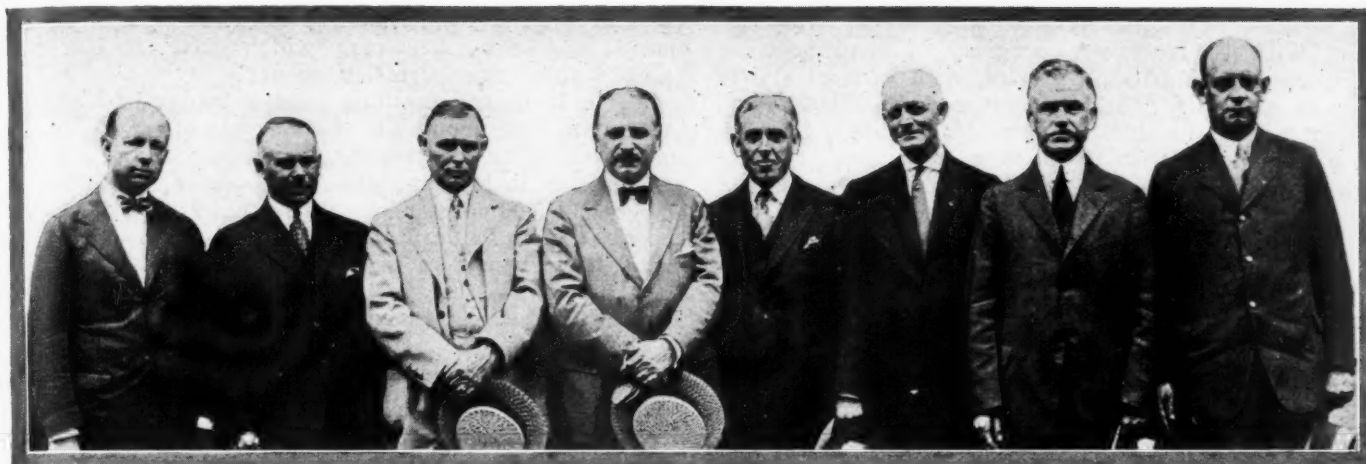


Photo by Underwood & Underwood

Members of the American Commission to the Pan-American Highway Congress. Left to right: Pyke Johnson, executive secretary; Thomas H. McDonald, chief of the Bureau of Public Roads; Congressman W. E. Hull of Illinois; Honorio Pueyrredon, Argentine Ambassador to the United States; H. H. Rice, vice-president of General Motors and chairman of the delegation; C. M. Babcock, Dr. G. A. Sherwell and Frank Page

U. S. Road Mission Leaves to Attend Pan-American Congress

Remarkable Era of Highway Construction in all Latin-American
Countries Widens Market for Motor Vehicles.

By George E. Quisenberry
Editor, *El Automovil Americano*

THE departure on Sept. 3 of the American Commission to the forthcoming Pan-American Highway Congress at Buenos Aires early in October should focus the attention of the industry upon the motorization of the various countries of Latin America. Hundreds of miles of motor roads are now being built or are in immediate prospect in these countries which are responsible for from 25 to 30 per cent of the present huge American automotive exports.

Nowhere is the increase in use of automobiles more striking and nowhere is the promise of future business brighter than in Latin-America.

Headed by H. H. Rice, former Cadillac president and now vice-president of General Motors, the American mission will meet at the Argentine capital representatives of all the countries south of the Rio Grande for a full discussion of the technical, financial and economic aspects of highway building and highway transportation.

With Mr. Rice in the Commission are Thomas H. McDonald, chief of the Bureau of Public Roads, Washington, D. C.; C. M. Babcock, of St. Paul; Frank Page, of Raleigh, N. C.; Dr. G. A. Sherwell, secretary, Inter-American High Commission, Washington, D. C., and Congressman William E. Hull, of Illinois, all experienced road and highway builders. Pyke Johnson, the Washington representative of the National Automobile Chamber of Commerce, is executive secretary.

Several automobile men, including David Fenner, of Mack Trucks, and Jay Rathbun, the White export manager, will accompany the Mission as non-official visitors,

and J. A. Nichols, vice-president of Dodge, who sailed from New York on Aug. 29 for Brazil, will also be at Buenos Aires during the Congress.

Highway activities are being extended throughout Latin-America to an extent that would have seemed impossible a few years ago and the Congress will undertake its activities at a time when the public demand for better highway and inland communication is forcing construction in many countries. The great public works program in Cuba, recently adopted and under which a complete network of roads will be built throughout the Island, is only one of several national plans now under way. Mexico is likewise embarking on large scale highway building, which, according to Mexican officials, should treble within a comparatively few years the automotive registrations in that Republic.

As in Cuba, special revenues are being provided in Mexico to pay for the highways that are to be built and, commencing Sept. 1, there will be available several hundred thousands (gold) monthly for road construction. The entire proceeds of a new gasoline tax, together with an impost on tobacco are "ear marked" for this fund and, according to reports from Mexico City some construction contracts have already been let. North American highway contractors are even now in Mexico City and the preliminary steps are being taken for actual building.

"The increase in (Mexican) imports during the first five months of 1925, as compared with the same period of 1924, represented a 200 per cent increase in the purchases of automobiles and vehicles," states a bulletin

just released from the Mexican Embassy at Washington. "With the extensive program of road building which has been started in Mexico, with Federal appropriations calling for the expenditure of \$1,000,000 Mex. Cy. per month, the sales of automobiles, tires, gasoline and oil will more than treble in a short time. A network of paved roads will cover the country, construction beginning simultaneously from different points and all the proceeds of the gasoline and tobacco taxes being set aside for this purpose. Besides this, road construc-



An enterprising automobile distributor of Lima has placed the sign shown in this picture in various parts of the capital city of Peru, where an important highway campaign is under way. The sign reads "Good roads bring prosperity, wealth and national progress"

tion by the Federal soldiers is being carried out at different points."

It is not at all improbable that gasoline taxes may provide much of the revenue that will be required to pay the highway bills of Latin-America. Cuba and Mexico have pioneered the way for such a tax and their example is certain to have an important effect throughout all territory from the Rio Grande south to Argentina and Chile. The Cuban tax is 10 cents per gallon but with it is coupled a reduction of tariff on imports that has resulted in no increase in price to the consumer but a big gain to the Cuban government. Mexico has levied a gas tax only about half that of Cuba, being three centavos per liter. This is equivalent to, practically, 5¼ cents per gallon and will be paid on about 10,000,000 liters of gasoline consumed monthly in the Republic.

Interest in Other Countries

Countries farther to the south are no less interested in roads, although none has yet embarked upon such complete Federal plans as have Cuba and Mexico. Venezuela, however, is becoming motorized as roads are being opened. A fine new concrete highway, almost 20 miles in length, now connects Caracas, the capital, with its port city, La Guaira, and a recent note from the little western town of Coro, some 400 kilometers away from Caracas, tells of the increase in automobile operation in that district as a result of opening motor service with Caracas. This is but an indication of the road work that is going on, almost unnoticed on the outside, throughout many parts of Latin-America, and which accounts in part for the thousands of automobiles being purchased this year.

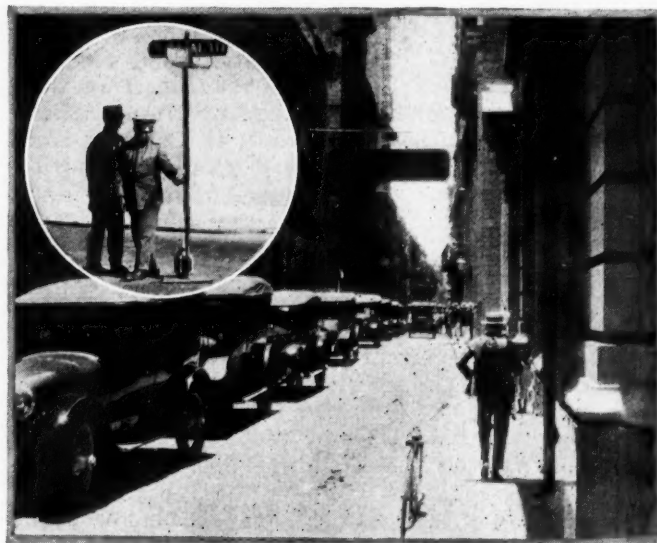
The Dominican Republic and Porto Rico undoubtedly have the best highway systems today anywhere in Latin-America and motor transport has become an established fact in these sections. It is the boast of Porto Rico, for instance, that every village may be reached over passable motor roads and that all main roads are capable of

sustained year-around travel by the thousands of buses, trucks and passenger cars which have become the Island's chief transportation agency.

Brazil, however, has long been a leader in highway building and the thousands of kilometers of roads already in use, or under construction, have been of the highest consequence in bringing about the sale of an estimated 40,000 or 45,000 cars and trucks in that friendly country this year. Sao Paulo State, which has pioneered the era of better transport in Brazil, has laid out its program on a state-wide scale, with roads radiating from Sao Paulo City in the various directions to the border lines of each of the surrounding States or to the sea coast. Some of these main highways have been completed; others have advanced hundreds of kilometers into districts heretofore inaccessible.

The example of Sao Paulo has not been lost or the other States of Brazil. Road building is now becoming an accomplished fact in the Rio de Janeiro district and, with roads leading over the mountains, it will not be long before motor traffic is regularly maintained between Rio and Sao Paulo, the two chief cities of the country. The interior State of Minas Geraes, west and north of Rio, is getting into highway building and several stretches have been opened of the projected road, 600 kilometers long, that ultimately will connect Balne Hori-zonte, capital of the State, with Rio.

Many of the automobiles being sold in Brazil this year are going into the smaller cities and country towns, frequently to places that have only recently been opened to outside communication. Higher prices for coffee and the agricultural products of the country, together with a more experienced automotive distributing organization this year, have done much to push Brazil forward as an automobile buyer in 1925 but, had it not been for the roads now available for motor transport in the dif-



A typical automotive street scene in Mexico City. This country is now getting a huge road-building program under way

ferent districts, the country could not possibly absorb so many cars and trucks. Brazil, it might be said, is the only country in the world in which there are three branch assembly plants of large American companies. Ford has two now operating there, at Sao Paulo and Pernambuco, while General Motors has recently opened the third at Sao Paulo to assemble Chevrolets.

Space, of course, does not permit of a detailed summary of all the highway activities of Latin-America. Argentina, one of the two or three great markets for

American automobiles, is just beginning its road building, although the level pampas stretching unbroken mile after mile do not give it the highway problem that exists in more rolling or mountainous countries. Nevertheless, the imports of road building equipment have reached high levels at Buenos Aires, chief port of this progressive nation, and various interior roads are being built. The automobile clubs and associations have mapped the more populous districts, the Government has before it a highway plan somewhat like the Federal Aid system in the States, and the roadless days are becoming a thing of the past in Argentina. As evidence, it need only be submitted that Argentina is buying 1,000 American cars and trucks a week in 1925. Actually, the imports and assemblies of automobiles during the first half of the year exceeded 27,000 and, facing the biggest season ever known in the River Plate, the year's total



The Dominican Republic has a complete network of good roads, of which this is a typical section

will exceed 55,000 or 60,000, an increase of 50 per cent from the 37,500 of last year.

Some of the highways of Chile are shown in the accompanying photographs, enough to indicate that there are roads in some parts of that country over which may be operated the increasing number of automobiles. No country needs good communication facilities more than does Chile and there is every expectation that they will be built, although the problem is a difficult one.

Peru, which still remains one of the smaller markets, has got an interesting and promising highway campaign under way, largely through the automobile dealers and the owners' organization. A magnificent concrete highway between Lima, the capital, and Callao, the chief port, was opened last year and considerable progress has been made through improving various "bad sections" in roads which are now passable over long distances. A few months ago, an enterprising distributor at Lima showed that motor transportation was possible practically from the north to the south. One automobile, starting from Lima and going north, reached Piura, almost at the border and 1000 kilometers distant. Another, going south from Lima, traveled overland to Arequipa, 1100 kilometers away. Journeys such as these show that the automobile and the motor road are becoming an established fact in this old Inca territory.

Latin-America absorbing this year at least 40, if not 50 per cent, more automobiles than last year and there is as yet no evidence that the saturation point is anywhere in sight. In reality, as in the United States, the more automobiles, the farther away does the saturation point appear to be. Every new automobile makes uses for many others. The example of one road starts the

construction of another and, with cars, trucks and buses in steadily growing numbers, it may rightly be said that Latin-America has entered a new era in its motor progress. This will truly be an era of highway transport, modeled after and on the same lines as that which we know in the States.

The United States delegation is going to the congress in acceptance of an invitation from the Argentine Government, similar to those sent to the other Republics in this hemisphere. Definite word has been received from all of these countries except Ecuador and Mexico that they will be represented at the meeting.

The invitation of the Argentine Government was an outgrowth of a resolution passed at the Fifth Pan American Conference at Santiago de Chile and the gathering is a representative Pan American affair.

While the United States is participating in the meeting in a completely co-operative spirit, the American delegation is expected to play an extremely important part in the deliberations in view of the greater experience of this country in establishing adequate highways.

Commenting on the nature of the delegation's mission, H. H. Rice, its chairman, has pointed out:

"If, by citing our own experiences, we can help our sister nations of the South to avoid the needless waste of time and millions of dollars of money which we were obliged to go through before highway construction had become systematized as it now is in this country, we feel that our return trip to South America will be productive of as good results as the delegates from the Latin American countries were kind enough to say resulted from their visit to the United States last year."

Rice's reference was to the Pan American Highway Commission, a gathering preliminary to the Buenos Aires meeting, in which representatives of nineteen republics inspected the North American highway system last summer.

Papers which have been prepared by the delegation for presentation at the conference present a complete history of highway development in the United States, with especial attention to the development and construction of the types of roads best suited to Latin America.

Mr. Page will speak on "The Construction and Maintenance of Highways in the United States;" Mr. MacDonald, on "Highway Administration in the United States;" Mr. Rice, on "The Economic Influence of Motor Transportation;" Mr. Babcock, on "Highway Finance in the United States;" Dr. Sherwell, on "The Social Influence of Highway Development;" Dean Johnson, on "Highway Education in the United States," and Representative Hull, on "Highway Promotion in the United States."

Highway Promotion

The subject of highway promotion also will be developed in a supplementary paper prepared by Roy D. Chapin, vice-president of the National Automobile Chamber of Commerce. Other papers by authors who will not themselves be present at the sessions will be:

"Bituminous Surface Roads," by Paul Sargent, chief engineer, Maine Highway Commission.

"Natural Soil of Gravel Roads," by Charles Upham, chief engineer, North Carolina Highway Commission.

"Hard Surface Roads," by Frank Sheets, chief engineer, Illinois Highway Commission.

"Coordinated Transportation," by David J. Fenner, chairman, Motor Vehicle Conference Committee.

The delegation will sail from New York Thursday, Sept. 3, on the Grace Line Steamship Santa Ana. Since the Buenos Aires Congress does not open until Oct. 3, the members of the delegation will visit several of the Latin American capitals before arriving at Buenos Aires.

The Fall Buying Season is now at hand. Here is an Opportunity for Manufacturers to remind their Dealers that—

“The Clean Shop Gets the Business”

Some Suggestions for Keeping the Public in a Buying Mood By “Slicking Up” the Sales Rooms and Service Stations.

By Clyde Jennings

DID you ever know one of the “human dynamo” chaps, the sort of man who serves as a super-charger for the president of the Rotary Club and who is always making the manager of the local Chamber of Commerce rather ashamed to take the money (if such a thing is possible)?

Well, one of them has been in New York for a few days, winding up his vacation. His home is in a mid-western city where he has a successful business, and on the side he organizes the automobile dealers for Orphans' Day and to take the old soldiers to the cemetery and all such things. But he is interesting, nevertheless, and, if you do not live in his town, anything but a pest, for he is always springing something new.

We met three times in one day and each time he wore a different suit. Presuming on old acquaintance, this question was put: “Why all the sartorial display? Since when did you small town men begin to dress for morning, afternoon and evening?”

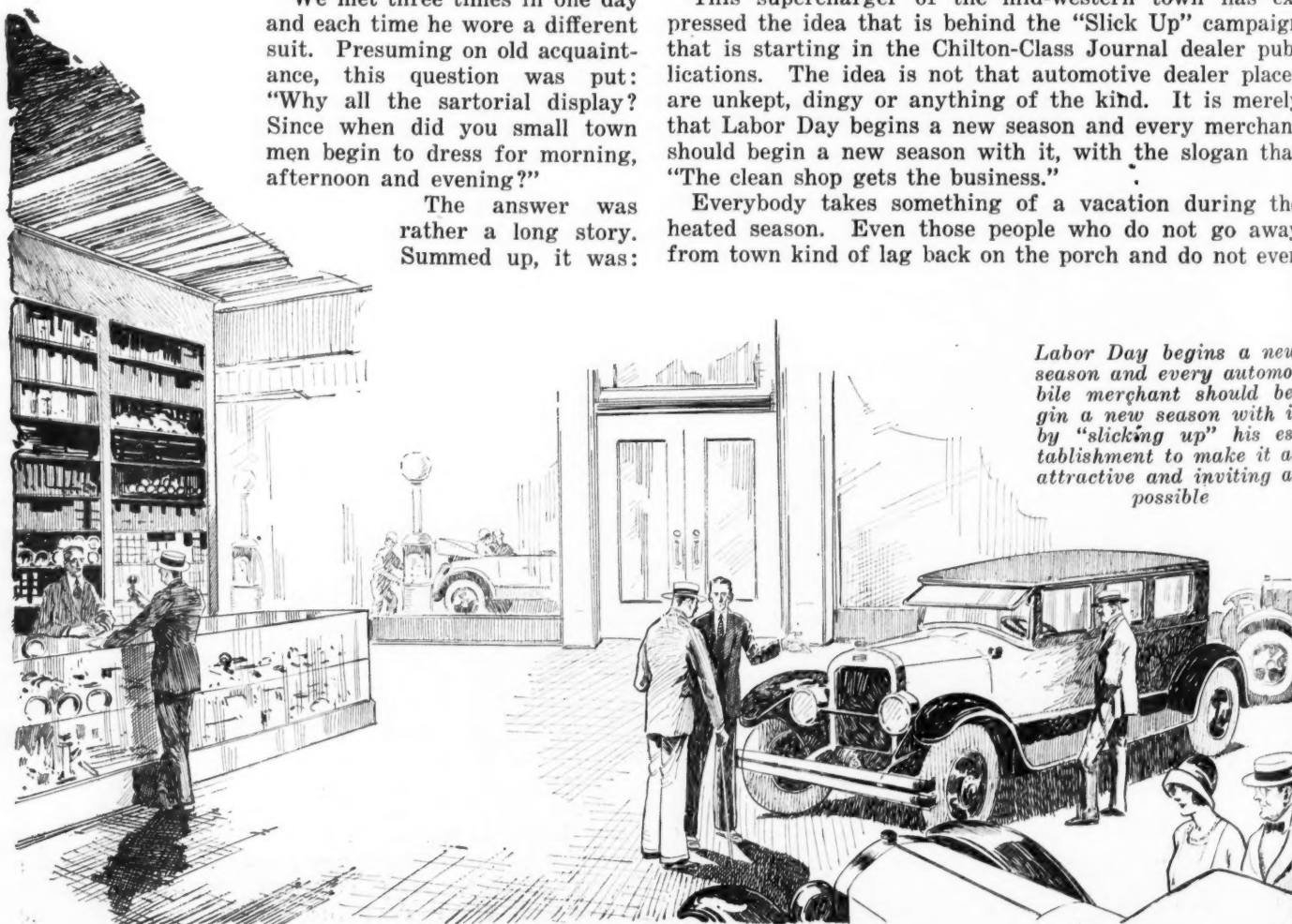
The answer was rather a long story. Summed up, it was:

This supercharger fellow spends his vacations wherever he likes, but he always ends it in New York, and this is the excuse: “This is the only town I know where a man can dress properly and not attract attention. During the vacation I get pretty comfortable and lazy. In other words, I get careless. My reputation at home is such that I cannot afford to go back there and practice getting in trim. They think I am always up to the highest standard.

“So, as a last lap on the summer, I bring my special occasion wardrobe here and by the judicious expenditure of a bit of money, I can again get in step with clothes and customs. I buy a couple of suits of real fitted clothes and go home to start the season all in trim, the vacation indifference all gone.”

This supercharger of the mid-western town has expressed the idea that is behind the “Slick Up” campaign that is starting in the Chilton-Class Journal dealer publications. The idea is not that automotive dealer places are unkept, dingy or anything of the kind. It is merely that Labor Day begins a new season and every merchant should begin a new season with it, with the slogan that “The clean shop gets the business.”

Everybody takes something of a vacation during the heated season. Even those people who do not go away from town kind of lag back on the porch and do not even



Labor Day begins a new season and every automobile merchant should begin a new season with it by “slicking up” his establishment to make it as attractive and inviting as possible

trouble to read all of the personals in the home town paper, because it is well known that the summer wedding engagements are likely to be only temporary and the divorce suits cannot be filed until the lawyers get back from the mountains or lakes.

But come Labor Day they fold up the white trousers and begin to wear vests and become critical of things they have not even noticed through the glaring sun. The children become window shoppers on the way to and from school and Johnny reports that he won a knife on a bet as to how many dead flies were in the spider webs in the windows at the De Luxe Auto Co. store.

Just as soon as madam gets her clean curtains up, she becomes critical of everything in the way of windows that she sees, and so it goes.

It might be just as well if this "Slick Up" campaign was turned over to the women, or perhaps just invite the women in as consulting engineers on the job. Women ought to know a lot about slicking up for they have been doing it twice a year for many, many years. It is more than a habit; it is a fixed custom and if Congress ever wants to make a supreme test of regulating personal rights, just let them legislate against the ancient and devastating custom of cleaning house thoroughly once a year and slicking it up again in the fall.

Enlisting Aid of Mrs. Dealer

This suggestion explains the reason for bringing this "Slick Up" campaign into AUTOMOTIVE INDUSTRIES. It is not that there are great numbers of dealers waiting for this publication to reach them in order that they may know how to conduct their business, but it is suggested that some of the factory folk might be lured into suggesting to Mrs. Dealer that she go around to the salesroom and tell Mr. Dealer just what he needs to make his display as attractive as the millinery window down the street.

Factory sales departments quickly rallied to the idea that the woman is a major factor in the buying of automobiles in her quiet insistent way of managing the man who writes the check for the first payment, so why should not women, whose bread and butter and beauty parlor bills are dependent upon automobile sales, be proportionately a factor in selling cars to the other women. Factory sales departments are ingenious in many things and there could be a less worthy display of ingenuity than that of seeking to interest Mrs. Dealer in her husband's salesroom display or persuading Mr. Dealer to have a committee

appointed by the Women's Art Guild to pass judgment on his efforts.

Every one has heard that classic story of the western district manager who (while the dealer was gone to lunch) got a crew of window washers and house cleaners and completely scoured the place, and so changed its appearance that when the dealer returned he walked right by it and only by checking up on numbers was able to find his business home.

Fortunately those days are gone, or at least we will assume so. But there are other stories of more recent vintage that illustrate the point we have in mind.

The Experience of One Dealer

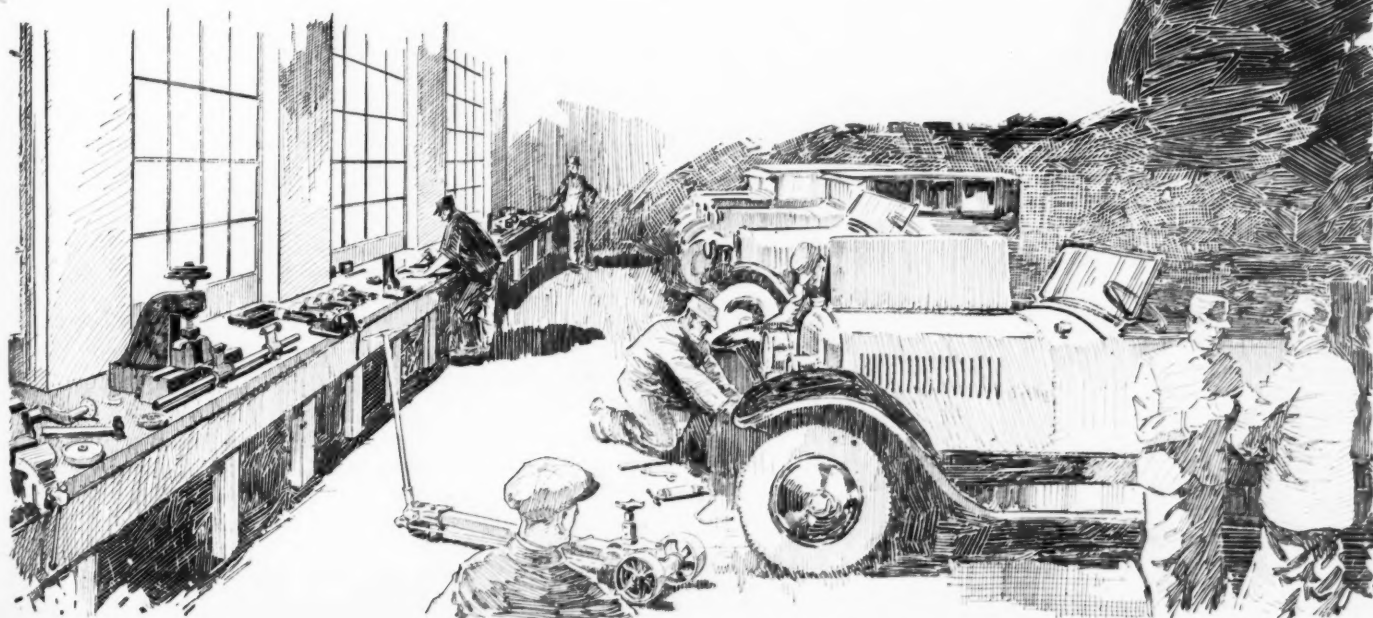
Only recently a New England dealer was putting on an anniversary event. This dealer, a smart and successful one, a factory representative, and the sales manager put in three or four days bossing decorators, painters and other persons who have to do with such special events. Mrs. Dealer was busy with some affairs of her own and, aside from sending a beautiful plant, did not show much interest for a couple of days.

The opening started and there was a good run of callers and some of them said "What beautiful flowers," and some said "You're all fixed up." Then Mrs. Dealer drove up, stopped in the doorway and laughed.

"You poor dears," she said, "It looks just like the men did it." And she began to issue orders and the former bosses of decorations did as she said. This plant was moved, that bouquet went to that corner, the cars were changed and within 15 minutes a lot of things happened.

The very next visitor said, "My, how beautiful," and so it went for the rest of the week. Not a single visitor said anything about being "fixed up."

Now in this story is the idea that is being brought out. A beautiful display last spring is not, perhaps, a beautiful display this fall. No matter how immaculate the cleaners have kept the place, there is an opportunity for a different and more seasonal display. In this present parlor lamp vogue through the country a good many dealers and some manufacturers have gone broke trying to sell "cold colors" in shades during the winter and "warm colors" during the sum-



mer. Women know about these things and if the dealer wants them to admire his car as it stands in his salesroom, he must pay some heed to dead flies and colors and such things as that.

There is an interesting story that is told on a western Pennsylvania dealer who made his stake during those wonderful days during and after the war and then who tried to keep on letting people come and buy cars. In 1924 he still thought times were bad and that he was doing well to break even and to keep the savings of the big years unimpaired. He was content as long as business paid its own expenses and he could live on Liberty Bond coupons. He was in a rut, such as any business man is apt to fall into unless he keeps himself and his business dusted off. It is easy to slip into a rut.

A Profitable Mistake

One day he made a mistake of hiring a used car salesman on a percentage business. He did not know this man spelled his name Cohen when he hired him or he might have feared trouble. Anyway, Cohen sold all the used cars on hand the first week and then realized that the only way for him to make money was to get more cars to sell. The only way to do that was to trade new cars for old.

So while the boss was out one afternoon he washed the salesroom windows, cleaned up the place generally and washed the new car display and put new globes in all of the sockets, half of which had been removed to cut down light bills. Bill, the dealer, did not get around that night, and the next morning he noted that someone had washed up, but did not get excited about it.

At the Lion's luncheon that day Mark, the parson member, came to him and said: "Bill, why don't you advertise that new model of your car? I did not even know you had it until I passed your salesroom last night."

Bill mumbled something in reply and his particular cronies at his table laughed so long and loud that Parson Mark was somewhat discomfited, as he knew there was a joke that he did not understand. Bill's cronies fined him two bottles of Scotch to be delivered at the Country Club that night, on pain of telling the whole club that it was not a new model of car on display but merely a chance to see the one that had been there for several months.

Wanted: An Explanation

Of course, Bill had to pay, and Mrs. Bill (for reasons that were sufficient to her) demanded an explanation of the removal of the two bottles and his absence all evening. When Bill explained to her, there was about the liveliest "I told you so" chapter that could be written. Bill thought his wife was in a pretty good humor about it all, and he did not quite understand it until she told him at breakfast that she had dropped into the store the evening before to bring him home (and there got his message about his absence) and while she was there a brother Lion had come in to see the new model that Parson Mark had told him about and that Cohen had sold him a new car to get the old one for his used car stock.

That was Dealer Bill's lesson in slicking up, and the writer can vouch for the fact that since that event Bill has had a very much slicked up salesroom and he has found out that the hard times of 1922 are over. Cohen still has a job, Mrs. Bill says she is a silent partner, and Bill just grins when asked about the story.

Aside from any suggestion made in this article, there are some downright reasons for a semi-annual "Slick Up," and some of these will be touched upon in an article to appear in the near future.

New Case-Hardening Process Said to Eliminate Warping

A NEW case-hardening process which is said to entirely eliminate warping of the hardened parts has been developed by Fried. Krupp, A. G., Essen, Germany. It is stated that the reason for warping of parts case-hardened by the conventional process is that the critical point of ordinary steel is very high, above 1400 deg. Fahr. This difficulty is eliminated by the new process of case-hardening of special steel by nitration, on which Krupps have taken out patents.

With this new process, nitrogen is allowed to penetrate into the surface layer of the parts to be hardened, instead of carbon, which requires only 1050 deg. Fahr. The advantages resulting from this process are as follows: The surface remains clean; a light discoloration can be readily removed. The parts do not warp. There is a very slight increase in thickness, which in most cases is of no consequence and in other cases can be allowed for in the machining beforehand. No hardness cracks occur.

It is necessary to make use of a special steel, which is furnished in several grades showing from 70,000 to 140,000 lb. per sq. in. tensile strength and in respect to other mechanical properties are quite similar to chrome nickel steel. The parts must be completely machined before being subjected to the nitration process, as the whole of the surface will be hardened. The process is said to possess particular advantages when applied to steel worms and helical gears.

The depth of case may be increased by the nitration process to 0.060 in. According to statements of the Krupp firm, the hardness of the surface obtained by this process is greater than that obtained by carbonization and corresponds to 7 deg. on the Mohs hardness scale. Brinell hardness up to 750 has been obtained, a 2.5 mm. ball and a pressure of 187.5 kg. being used. The hardness decreases gradually toward the core, hence there is no danger of peeling off of the hardened layer. The scientific principles of the new process were discussed in the "Kruppsche Monatshefte for 1923," page 137.

Effect of Rubber Compounds on Solid Tire Power Loss

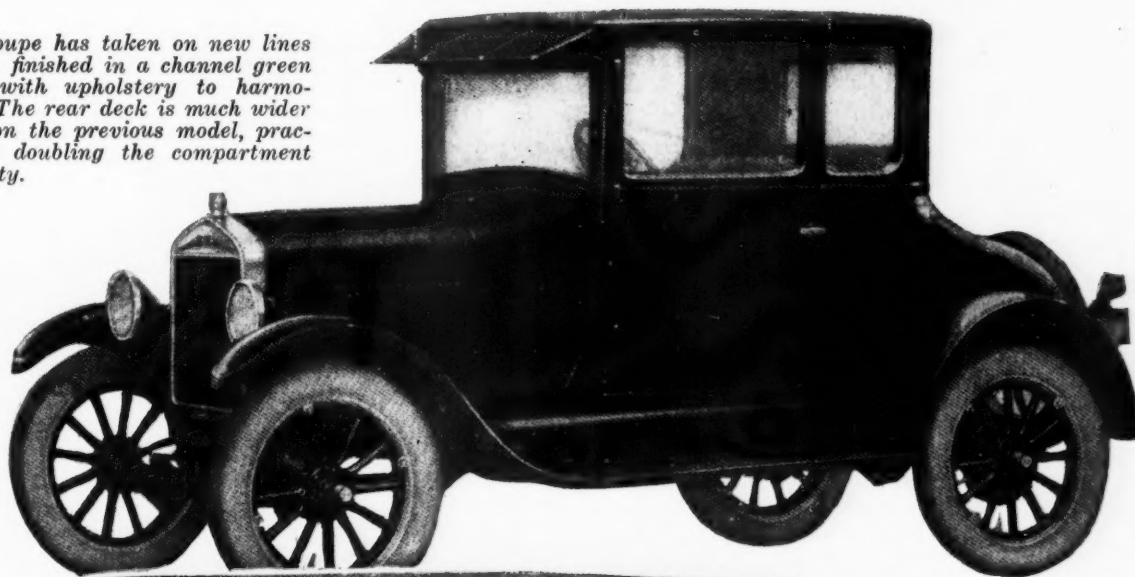
RATHER unexpected results were obtained in some dynamometer tests of four 36 by 4 in. solid rubber tires at the Bureau of Standards recently. The tests were carried on in cooperation with one of the manufacturers of ingredients used in rubber compounding to determine how the use of different ingredients would influence the power losses in the tires.

Each tire was run under the same conditions of load and speed for approximately three hours, power loss and tire temperature measurements being taken at regular intervals during the run. A very decided difference was found in the temperatures developed in the various tires. The one which showed the lowest power loss reached a temperature of 225 deg. at the end of three hours, while the tire with the highest power loss reached a temperature of 355 deg. Fahr., at which time the rubber on the inside of the tire disintegrated to such an extent that the tire swelled and "blew out" like a pneumatic tire.

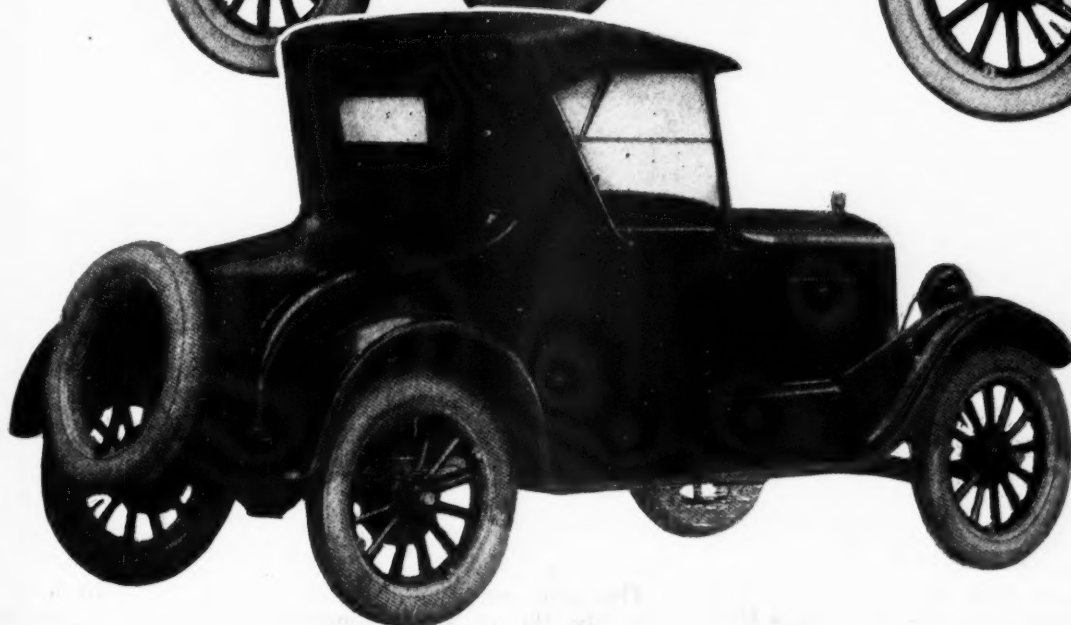
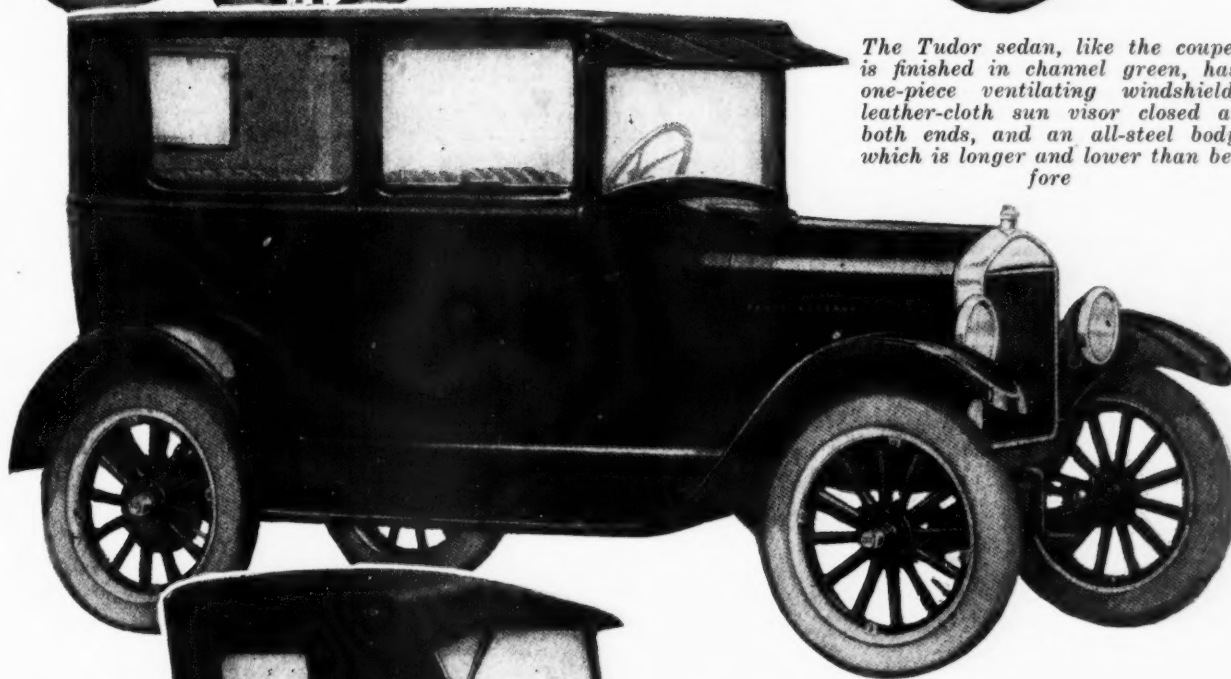
The tests emphasize the importance of considering carefully the physical properties of rubber compounds used in building tires and also illustrates the value of the tire dynamometer in the solutions of such problems.

How They Look—The Latest Ford Closed Models

The coupe has taken on new lines and is finished in a channel green color with upholstery to harmonize. The rear deck is much wider than on the previous model, practically doubling the compartment capacity.



The Tudor sedan, like the coupe, is finished in channel green, has one-piece ventilating windshield, leather-cloth sun visor closed at both ends, and an all-steel body which is longer and lower than before



The Runabout

The runabout now has two doors instead of one. Storm curtains open with the doors. The finish is black, as formerly. As on the coupe, the rear deck space has been greatly increased. Headlamp rims are nicked, but not the radiator

Two Milling Machines of New Design Have Pyramid Column

Built by Cincinnati Milling Machine Co. in two types. Both have a sliding gear transmission, automatic oiling, taper roller bearings and multiple disk clutch running in oil.

TWO new types of milling machine have been brought out by the Cincinnati Milling Machine Co., both distinguished by what is described as the pyramid column. In all of the older millers the sides of the column are parallel, making the area of the section uniform from top to bottom, whereas in the pyramid column the section increases gradually from the width of the overarm at the top to the width of the base inside the rim at the bottom.

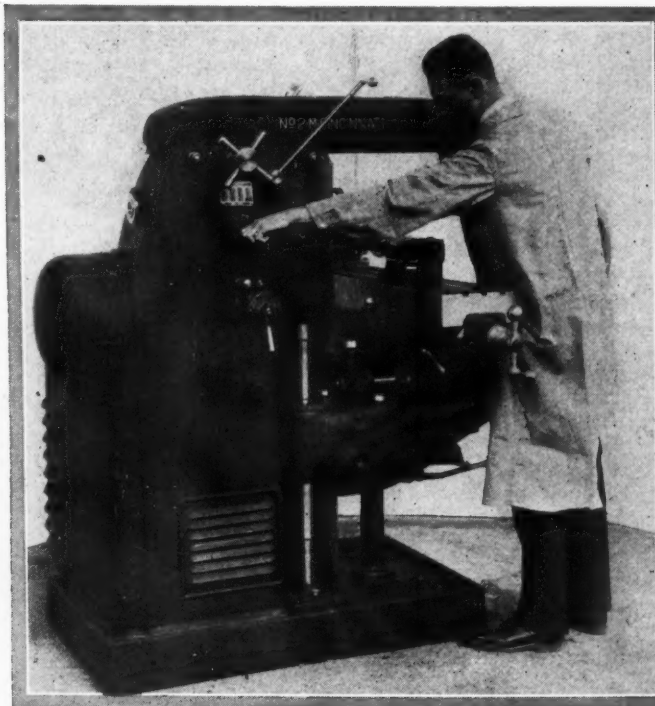
This later type of column evidently has advantages from the point of view of strength and rigidity, and it also lends itself particularly well to the use of an inclosed motor drive, as the motor can be readily accommodated within the wide lower portion of the column. However, belt drive can also be used with these millers and the column is interchangeable for the two forms of drive.

The two new types of milling machine have a great many features in common but differ in respect to others. Both have taper roller bearings in the speed mechanism; automatic oiling of the parts within the column; centralized oiling for the knee, saddle and table; a pyramid

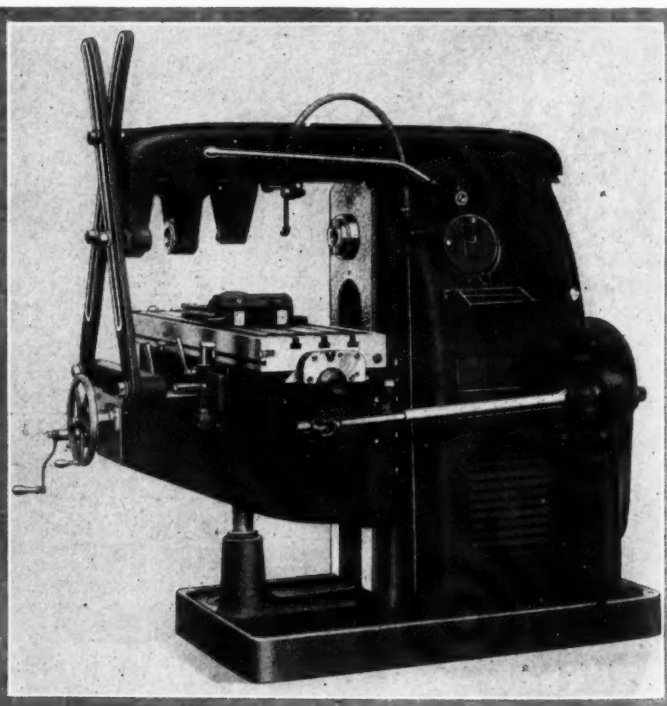
column; an inclosed motor drive, or, optionally, an overhead belt drive; a sliding gear transmission; a multiple disk clutch running in oil; double starting levers and a rectangular overarm.

Referring to the M type, all controls are conveniently arranged at the front. By means of sliding gears the speed can be changed quickly while running, and changes of feed also can be effected rapidly by means of the feed box at the front of the knee. The machine can be started and stopped from either side, as double starting levers are provided, and a spindle brake applied by means of the starting lever permits of bringing the spindle to a quick stop. The power feed levers for both vertical and cross feed are located at the front of the knee.

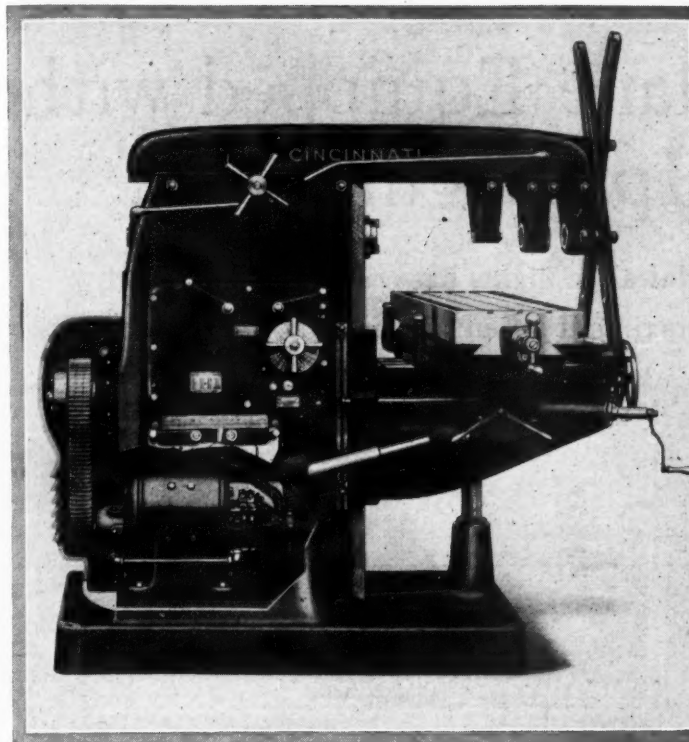
By giving the overarm a deep rectangular section the need for braces has been eliminated, except for unusually heavy cuts. Swinging dogs permit of engaging the feed in either direction without running off the dogs by hand. The sliding gear through which the spindle is driven has only heat treated alloy steel gears. All shafts of the transmission are supported in taper roller bear-



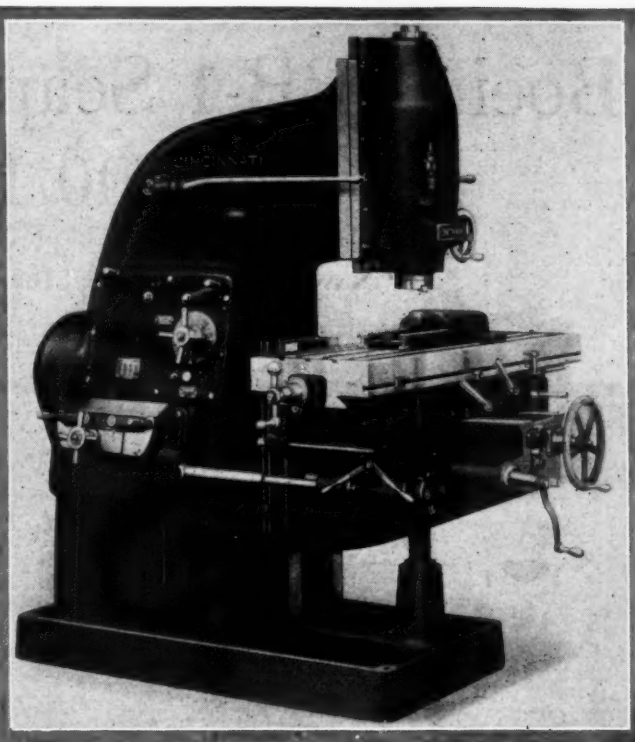
"M" type Cincinnati milling machine, showing operator changing spindle speeds from his normal operating position at the front. Without shifting his feet he makes feed changes and starts and stops the machine



No. 2 and No. 3 type high power Cincinnati milling machine showing right hand side view. Note location of duplicate starting lever; also power quick traverse mechanism and oil flow indicator in automatic oiling system



No. 2 and No. 3 type high power Cincinnati milling machine with column broken away showing method of locating motor



Pyramid column No. 3 vertical Cincinnati milling machine, showing left hand front view

ings and they are provided with integral multiple splines instead of loose keys. The driving mechanism is automatically oiled.

The box section rectangular overarm is designed for stiffness in both bending and torsion. When changing set-ups it can be quickly shifted by a pilot wheel. On the under side of the overarm there is a scraped V bearing for the triangular arbor supports. An adjustable arbor support bushing makes it possible to maintain a close bearing on the arbor collar. The flanged spindle end is standardized on all sizes of single pulley machine, which means that face mills and arbors are interchangeable. The No. 14 taper hole in the spindle is similarly standardized. The spindle is of chrome nickel steel, heat treated, and means are provided immediately behind the front bearing for adjusting its end play.

Motor Bolted to Plate

If the motor drive is used the motor is bolted to a flat plate machined on both sides, which in turn is bolted to the box-section base of the machine. The drive from the motor to the drive shaft is by silent chain. Vents in the side of the column and the rear cover of the motor compartment insure ample ventilation, and the motor can be oiled and the brushes adjusted through the vent holes.

The knee has a solid top and a saddle bearing 12½ in. wide. It is claimed that the tapered gib connection to the column is of such design as to obviate the necessity of clamping the knee even when taking heavy cuts. The knee is adjusted in height by means of a single piece screw, instead of the usual telescopic construction, which is said to give more accurate dial readings. The saddle bearings for the table are as wide as the table itself and as long as the table travel.

Aside from the automatic oiling of the parts within the column, the knee, saddle and table are oiled from cen-

tralized stations with reservoirs which can be quickly filled with suitable large mouth, oil cans.

The M type millers are also made in the vertical form, which differs from the plain type only as regards the upper part of the column and its mechanism.

Feed Box at Side of Column

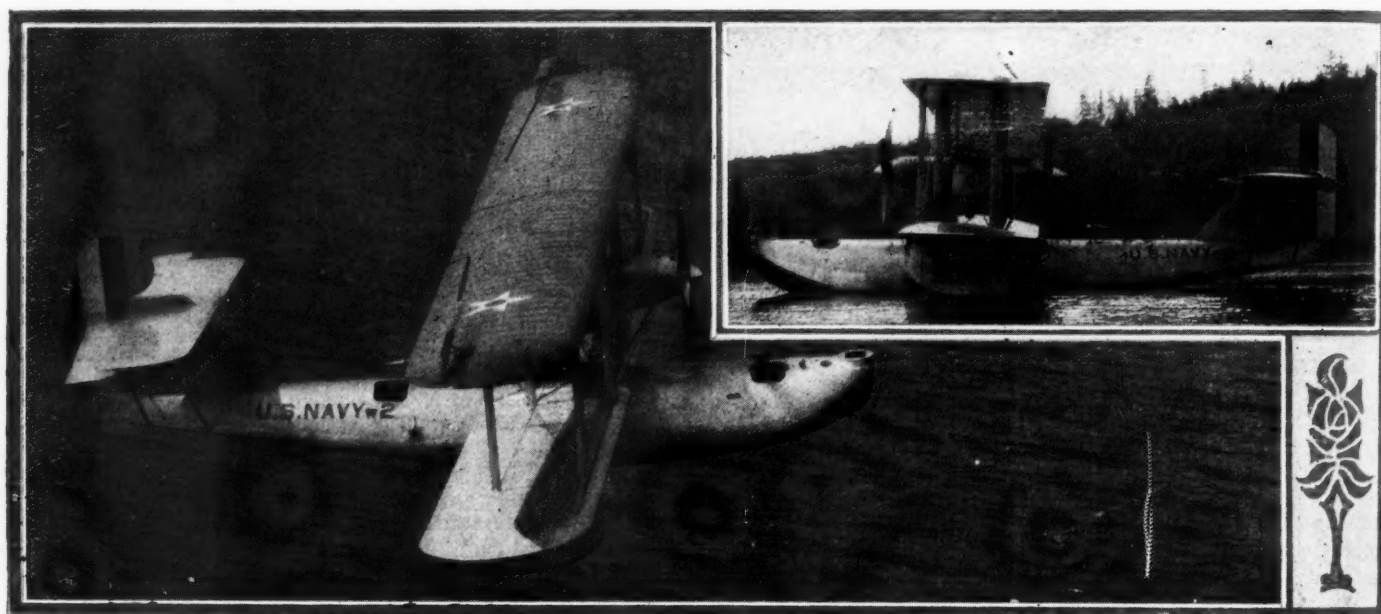
As already pointed out, the characteristic features of the Nos. 2 and 3 High Power millers are that they have the feed box at the side of the column and the plain and vertical machines are provided with power quick traverse. The quick traverse is operated by a single lever at the front of the saddle. By moving this single lever to the right or left the table is caused to travel at 100 in. p. m. in the same direction. When the operator's hand is removed the lever automatically returns to the stop position, a feature that is claimed to reduce operator's fatigue and to increase production. Rear control is provided for all feeds, so that the operator can stand behind the table, as required with many jobs without loss in production.

Set-ups can be changed quickly, because of the easy shifting of the rectangular overarm and the provision of a power quick traverse. The starting levers, of which there is one on each side, extend to the front and are therefore within convenient reach. Pulling down on the starting lever brings the spindle to a stop quickly through the application of the spindle brake.

The sliding gear transmission has the same features, such as taper roller bearings, and alloy steel gears, as the transmission on the M type. It provides 16 spindle speeds. Only the gears required for any particular speed are in mesh when that speed is in operation. The base is of double box section, heavily ribbed, and forms the reservoir for the cutting lubricant. The knee has a long bearing on the column, with a tapered adjustable gib. Bearing surfaces of the knee, table, saddle and column are chilled to secure better wearing qualities.

Boeing PB-1 Seaplane Equipped with Two 800 Hp. Engines

New navy flier constructed for Hawaiian flights has cruising speed radius of 2500 miles. Maximum speed 112 m.p.h.



Two views of the Boeing PB-1 seaplane, built for non-stop flights from the American mainland to Honolulu. This new seaplane, which incorporates many radical departures in construction and weighs 12 tons, has a cruising range of 2500 miles

IT is the general belief in Navy circles that the new Boeing PB-1 patrol plane which has just been finished for the Navy department may offer the final solution to the problem of aerial communication with the Hawaiian Islands.

The Boeing, which is a bi-plane of the boat type, embodies a number of radical departures from present airplane design. Except for the Barling bomber it is the only push-pull type of aircraft built in this country in recent years, and may be the forerunner of a number of such planes.

The power plant consists of two Packard 1A-2500 engines arranged in tandem, each engine being capable of developing 800 hp. at 2000 r.p.m. Although both engines are needed to taking off, safety in flight has been greatly increased and the danger of forced landings reduced, as either of the engines is capable of maintaining the plane aloft at cruising speed while minor repairs and adjustments are being made on the other. From this point of view, the plane follows modern European practice, where multi-engined planes capable of operating with one or two engines out of commission are constantly gaining in favor. It will be recalled that the planes used in Capt. Roald Amundsen's North Pole expedition were also multi-engined planes of the tractor-pusher type.

The plane is nearly entirely metallic in construction. The wings are of steel and duraluminum with a fabric covering, and the hull is made of dural with a 2-ply wood-decking. Instead of using small pontoons for balancing

floats, a box-like form of construction eliminating the usual bracing is used, the sides of the pontoons extending up to the lower wings to which they are directly attached.

The total weight of the plane, which is figured at 24,000 lb. when loaded for flight, will include 1100 lb. for fuel alone, representing about 1800 gal. of gasoline, which gives the plane a cruising-speed operating radius of 2500 miles, 900 miles more than that of the Navy NC type which made the first transatlantic flight. A further comparison with the NC type shows the development which has been made in the last few years. While the cruising range of the NC type was 900 miles less than the new PB-1, the weight was actually 400 lb. higher, and the NC type had a wing spread of 126 ft. as compared to only 87 ft. for the new Boeing. The PB-1 has a cruising speed of over 90 m.p.h. and a high speed of 112 m.p.h. with both motors operating at full throttle and developing a maximum of 1600 hp.

The plane is at present in San Francisco, where it is being prepared for its first flight to Honolulu. It was flown there on Aug. 22 from Seattle, 500 miles away. It is under the command of Lieut. Comdr. James S. Strong, Lieutenant Rico Botta, formerly of the Naval Air Station at Anacostia and the Bureau of Aeronautics, being its engineer officer. The rest of the crew of five men is composed of Lieut. R. E. Davidson, navigation officer; E. E. Thornton, radio operator, and L. C. Sullivan, mechanic.

According to the latest advices, the PB-1 will take the air for the Hawaiian flight at 2 p. m., Sept. 3.

Just Among Ourselves

On Again— Off Again!

THE open season for speech-makers is at hand. No sooner will automotive vacationists get back to their desks than they will be greeted with a clarion call from many organizations to leave their offices again and gather together to exchange those brilliant ideas for reaching the automotive millenium which have accumulated during the sultry days of the last two months. Our calender shows no less than eleven automotive conventions of one kind or another scheduled between now and the end of October. Of course, we don't have to attend them all personally, but we'll be among those present frequently. We go forth to listen with that hope which is well known to spring eternal in the human breast—the hope that a majority of business orators will start off with what they have to say and stop when they have finished saying it. And there is some good reason for that hope. We know about several papers right now that are going to be presented which will be all that could be desired both from the standpoint of brevity, informational value, and presentation. The millenium won't arrive next month to be sure, but we are looking forward to the current convention season with pleasurable anticipation.

This Isn't a Calendar—No?

TALKING about meetings, it is interesting to note the increase in things automotive on the program of the National Safety Congress every year for some time past. Besides factory safety discussions and traffic topics this year, the safety men are going to talk about taxicab

drivers and truck operators. We've often delivered speeches on these latter subjects, but fortunately most of them have been drowned out by the din of passing traffic. Otherwise we might be holding a lily instead of writing this. The bus show held in connection with the American Electric Railway Association meeting is another of the important events scheduled for early in October. And we're going to be more interested this year than ever before in what happens at the convention of the National Association of Automobile Insurance Companies, scheduled to be held in Montreal Oct. 13-14. . . . But after all this page isn't supposed to be a calender of coming events; that's in its usual place on the page just preceding the advertisements.

Foreman Training at S.A.E. Session

ONE of the things we're anticipating with pleasure is the S. A. E. Production Meeting. We were shocked and grieved to find a production executive the other day who didn't even know it was going to be held. He knows now. Personally we're particularly interested to hear what Mrs. Frank Gilbreth and Louis Ruthenburg are going to say about foreman training. Both are worth traveling a ways to hear on that topic. For more mechanically minded production men, however, there will be a wealth of other things that they can ill afford to miss. We make that statement after having been let in behind the scenes a bit the other day. Quantity production may be discussed, but it won't be practiced in the Production Dinner talks. K. T. Keller, general manager, General Motors of Canada, is the single speaker scheduled.

Aircraft to Make Huge Automotive Industry in Future

TALK about the enormous size of the automotive industry has become so commonplace that even figures of the highest size don't make much impression any more. But if anybody is going to be able to visualize the automotive industry of the future he'll have to be able to think in still bigger terms. Because the automotive industry of the future is going to include airplane and aircraft development and probably a lot of motor boat interests that haven't been associated with it in the past. There was some doubt for a while about how big a part automotive men were going to play in aviation development. There isn't much doubt now. The men who built the automobile business and the younger men trained in their offices, factories and drafting rooms are going to be the dominant forces in aircraft development. It always has been logical that they should be. Their action during the last twelve months has made that result almost certain.

Big Bus Growth Predicted

THE motor bus industry will be employing 1,000,000 men and will be supporting between 4,000,000 and 5,000,000 people within the next five years, estimates George Wheeler Hinman in a recent issue of the *Washington Herald*. "Fully understood," he continues, "this one example is an answer to half the predictions of business catastrophe and popular misery that are the commonplaces of pessimistic upheavers today." And even then the motor bus industry still will be only in the beginning of its real growth.

N. G. S.

Heald's New Internal Grinder Has Full Automatic Operation

Wheelhead advances to work at full speed, slows for grinding, wheel is dressed, piece ground to size and wheelhead returned and stopped, all automatically.

A FULL automatic internal grinding machine by means of which a complete cycle of grinding operations is performed automatically and without any action on the part of the operator except loading, unloading and starting the machine, is the latest addition to the line of abrasive machinery manufactured by The Heald Machine Co. of Worcester, Mass.

After the operator loads the machine and throws the starting lever, the wheel head advances to the work at high speed, automatically slows down as it nears the job and is fed into the work at any desired roughing speed. As the hole approaches finish size the wheelhead is automatically withdrawn to a position just past the dressing diamond. The diamond drops into place, the table is slowed down to the proper dressing speed and the wheel is trued. This completed, the wheelhead once more advances automatically to the work and is fed into it at the same rate as used for roughing, or slower, and its speed may be changed or kept the same as it was in the previous operation.

When finish size is attained the wheelhead is withdrawn from the work at full speed, the work head stops, the flow of water is shut off and the machine is ready for unloading, reloading and the start of another cycle.

The method used to accomplish full automatic control may be seen by referring to Fig. 1. The principle actuating mechanism is a sizing indicator shown in Fig. 1 and in more detail in Fig. 2. This is equipped with a diamond pointed finger which runs on the surface of the hole at all times, and through suitable electric contacts controls the operation of the machine.

Assume that the machine has commenced grinding a piece. As it approaches finish size an electrical contact is made at A (Fig. 1) which sends a current through magnet

B. This pulls down lever C and lifts a latch controlling dog D so that the table stroke is amplified enough to bring the wheel out past the dressing diamond. At the same time the movement of lever C opens a valve in cylinder E allowing oil to flow through pipe F to push the diamond down into position for truing.

When the dressing operation is completed the diamond is returned to its original position by means of a cam on the operating table. Lever C and dog D return to their original position and the wheel continues to grind at the predetermined feed and speed.

Upon the finish size being reached, a second contact is made at G which sends a current through a second magnet directly back of B operating lever H. Depression of this lever lifts dog J and permits the table to withdraw to rest position. As the table returns bar K hits roller L, thus opening the pressure release valve and sending the table back at full speed. The operator removes the finished piece, chucks a new one, throws lever M to the left and

the table goes toward the work at full speed until bar K runs off the roller, when the wheel assumes the set grinding speed and the new cycle is begun.

In order to send the current from the two contacts through the proper coil there is a switch attached to the cover of the magnet box operated by the fingers R and S. Terminal O is live at all times while the terminals N and P are arranged so that operation of the switch by the fingers R or S send the current through the proper coil.

Movement of the table is controlled by three dogs. Two of these are set for the grinding stroke while the third, a sliding member, is automatically operated by the sizing indicator and allows the table to withdraw far enough so that the wheel will pass the dressing diamond. These dogs have micrometer adjustments which can be altered

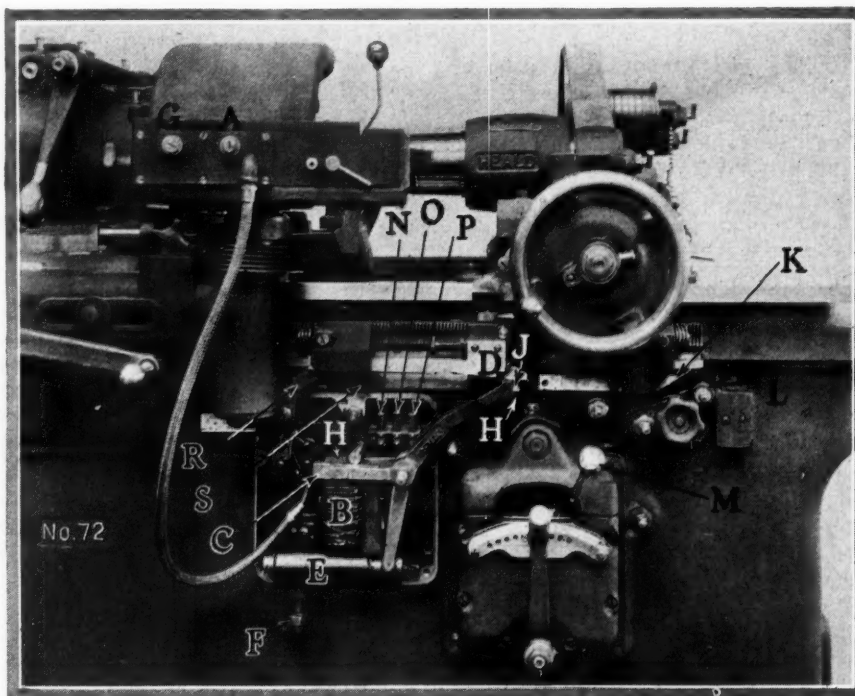


Fig. 1—Close-up of front of grinder, magnet box cover removed, showing size indicator and operating mechanism

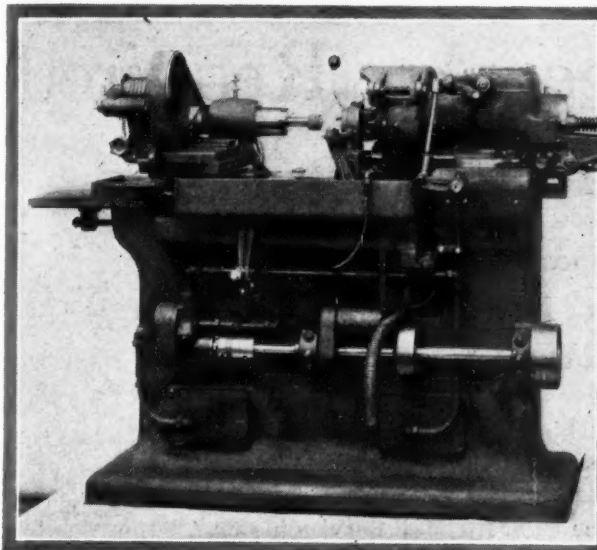


Fig. 2—Rear view of full automatic internal grinder

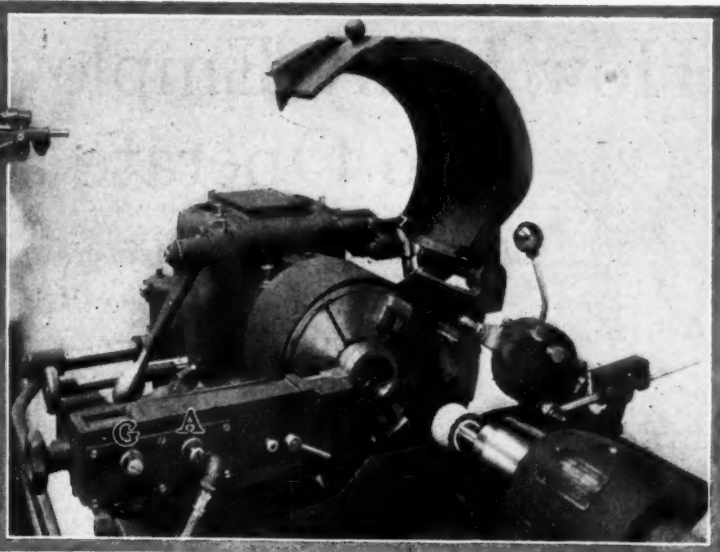


Fig. 3—Close-up of working parts showing size indicator, dressing diamond and grinding wheel

while the machine is in motion. The table is driven by a simple hydraulic arrangement which makes possible various changes of speed during a single operating cycle, all of them being made automatically.

This machine is equipped with an all ball bearing work head which is self adjusting, requires no attention but gives very close alignment at all times. A large hole through the spindle makes possible the use of collet operating tubes of either the push or pull type. It also permits a large supply of water to be carried to the work and, as it flows through the hole and all over the inside, even temperatures under severe conditions, such as are present when grinding hardened steel, are assured.

The sizing indicator box has a swinging mount and is swung out of the way automatically when the work is finished so that the operator can remove the piece easily. It can also be swung permanently out of the way when a master hole is being ground or a new wheel trued up. Its position is adjustable for various sizes of holes both in diameter and depth.

The wheel truing device is rigidly constructed, positive in operation and easily adjusted for position. It is so located that it is out of the way at all times, making it possible to use a spindle exactly the right size and length for doing the work without extra length for clearing the diamond. It is hydraulically operated, its movement being controlled by a dog and a cam on the table.

The automatic speed changes of the cross slide are important items in obtaining mass production since no time is lost in making slow non-grinding movements. The automatic change of speed, as well as feed after the wheel is trued, permits the production of straight, round hole without bell mouth. The cross slide is also equipped with a stop which is of assistance to the operator when it is necessary to change wheels or to put in a larger wheel and it gives him the position of the slide in relation to the work.

Capacity of the machine is for work up to 6 in. diameter by 6 in. deep. Its net weight is 5500 lb. and it requires a floor space of 49½ in. by 90 in.

ACCORDING to the Bureau of Standards, nickel cannot be smith-welded, owing to the formation of a coating of nickel oxide, which cannot be fluxed and which prevents the adherence of the two surfaces to be welded. On the other hand, where a reducing atmosphere may be maintained, the metal may be very satisfactorily welded,

Bosch Develops New Windshield Wiper

A NEW model windshield wiper, operated from the battery and having direct linkage between the motor and the wiping arm, has been designed by the American Bosch Magneto Corp. Current consumption is less than 1¼ amp., which will have no noticeable effect on the life of the battery. A worm cut into the armature transmits power to a worm wheel, to a connecting lever, to a link, and thence to the wiping arm so that loss of power through friction and noisy operation has been eliminated.

The housing is filled with non-fluid oil. A tandem arrangement by means of which two wipers can be operated at once is available at small extra cost. Only three holes are required to fasten the wiper on the windshield frame. It is furnished for 6- or 12-volt operation. The housing has a black satin finish with contrasting bright lever.

A SELF-ENERGIZING type of internal brake has been patented by G. Fornaca of Turin, Italy. There are two shoes which are pivoted together, while their free ends are held up against a stop or anchor post by means of a tension spring between the shoes. The anchorage post is of considerable diameter and within it is located a floating cam, the bearings of which are adapted to slide in slots cut in the anchorage post. If the brake shoes are applied to the drum the friction engendered will carry them around so one of the shoes will contact with the anchor post while the other one will be moved away from it by the cam. The brake is double acting, that is, it holds equally well for forward or reverse motion.

AN improved diemaker square has been brought out by the Brown & Sharpe Mfg. Co., Providence, R. I. The movable blade of this square can be set to any angle within limits, the angle being read off directly. This makes it a handy tool for use by the diemaker in establishing clearances of drop forging dies, for the pattern maker, in checking drafts of patterns, and for the toolmaker in depth gaging and establishing clearances. One side of the blade is made narrow so that it will enter small holes. The blade moves with the pointer by which the angle is read off. The body is hardened and ground.

How Many Employees Are Required to Operate an Airline?

Means of estimating approximate number of pilots, helpers, clerks, salesmen and executives that will be required for the organization. A typical example is shown.

By Archibald Black

Consulting Air Transport Engineer

IF plans for operation of a substantial airline are carried forward in a logical manner, the prospective operator will find it necessary to carefully map out the form of his organization and his payroll estimates at an early stage. As a matter of fact, anyone who has had experience in personnel organization of any kind finds that the preparation of a diagram of organization works wonders in clearing up questions of respective authority, weak points in the arrangement and frequently duplication of work or authority.

To check his own personal experience as regards the value of organization diagrams, the writer once discussed their value with a management and reorganization engineer of national reputation. He was particularly pleased at the emphatic accord. The question elicited the information that the very first step of that engineer, in tackling a reorganization problem, was to ask the men in charge to prepare a diagram of their existing organization. Experience had shown that the mere laying down on paper of the scheme of their organization invariably brought to light the weak points, overlapping of authority, etc.

In the writer's own experience he can point to a large aircraft factory in which questions of authority and responsibility caused constant bickering, and even bitterness, among foremen until he took the responsibility of preparing a complete diagram of the organization and placed it before the management for approval. When, a few years ago, he was retained in a consulting capacity

by the U. S. Air Mail Service his first action was to prepare a diagram of its existing organization which definitely fixed the responsibility and authority of each division head. If the organization diagram is of such value to projects already in operation, it can certainly be regarded as an essential to those which are being planned.

The lessons learned from the working out of the Air Mail organization, combined with studies of transportation organization in other lines and with personal experience in production organization, resulted in developing some definite ideas regarding air transport operation. The diagram represents the result of this experience and these studies and it can be regarded as applicable to any airline operated on a substantial scale. In small scale operations some of the offices and corresponding duties can be combined with others to keep the executive organization in closer proportion to the total number of employees. This question of combining duties is covered somewhat by the Tables 1 to 4 to which further reference will be made later.

In developing the list of employees and payroll for a substantial organization it becomes advisable to look ahead towards the additions which increased operations in the future will make necessary. In certain estimates which the writer had occasion to prepare he covered six different scales of operation. The actual numbers of employees required were worked out by very complete analyses based upon existing experience, excepting

Studying the Business Problems of Commercial Aviation

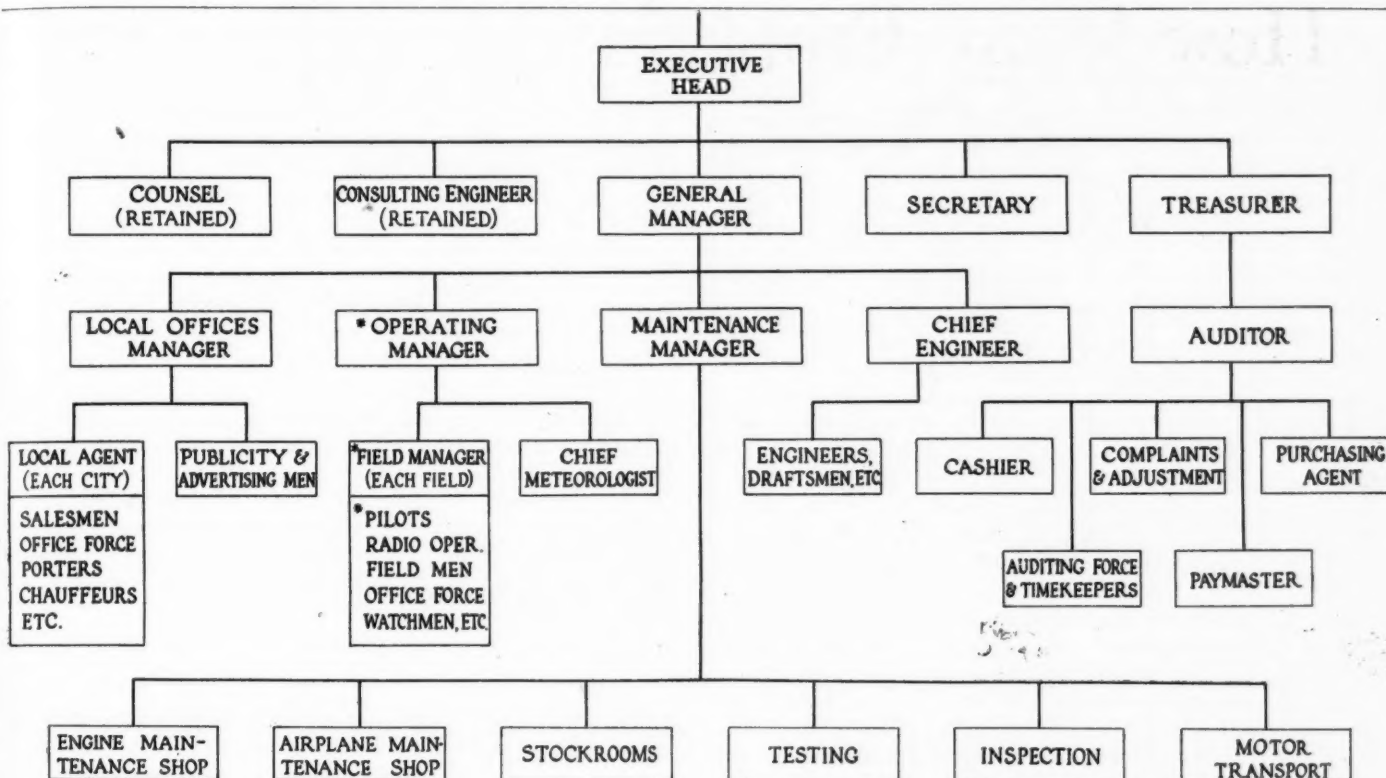
A GREAT new industry is developing in the United States in the form of commercial aviation. It is certain that within a few years the country will be liberally sprinkled with successful airlines.

With this development comes the need for a comprehensive study of such vital problems as airline organization, management and operating costs.

AUTOMOTIVE INDUSTRIES recognizes the importance of throwing the searchlight of inquiry upon these questions and presents here the first of several studies along this line.

The personnel required to operate a commercial air route is of first interest to anyone planning the organization of such an enterprise and a clear picture of this phase of the business is given in the accompanying article.

A Typical Air Transport Organization Diagram



* INDICATES FLIGHT TRAINING REQUIRED

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where this had to be modified slightly in its application to very large scale operations.

The plans covered by these estimates contemplated operation of 600 hp., 1800-lb. pay load airplanes from New York to Chicago, via Pittsburgh and Cleveland, with branches to Kansas City, via St. Louis, and to Minneapolis—St. Paul. The actual length of the route totalled 1617 miles, almost all of which was to be flown at night. The system was to carry only mail, express packages and similar matter and scheduled operation was not planned for Saturdays, Sundays or holidays on this account. Thus, the operations would be confined to 252 days per year with the exception of specially chartered trips. This plan has so much in common with those being promoted at this time that some comments on the required personnel should be of interest.

Although the actual number of employees must be re-estimated for any other project, a reasonable semblance of proportion will usually hold good. To provide some such rational basis of comparison with the numbers of employees necessitated in operation of other lines, the total daily mileage is given below:

Airplanes Operated Each Way, Per Day	Total Scheduled Air- plane Mileage Per Day
1	3,234
2	6,468
5	16,170
10	32,340
25	80,850
50	161,700

In estimating the numbers of employees for airline operation, high accuracy is possible in most cases of small scale operation. The few exceptions, where assumptions are necessary, are not sufficient to affect seriously the total payroll if the basis of the assumption should prove not strictly accurate. In the case of larger scale operations it becomes necessary to make some assumptions which might not hold good in practice. Fortunately however, any error will tend to in-

crease rather than to decrease the total employees apparently required for the larger scale operations. These estimates will thus be on the safe side.

The list of Operating Department Employees Table 1, is based largely upon the numbers of pilots which are

Table 1—Operating Department Employees

Title or class	Airplanes each way per day					
	1	2	5	10*	25*	50*
Field managers	7	7	7	7	7	7
Asst. field managers	—	7	7	8	8	14
Stenographers & typists	—	4	8	11	19	28
Pilots, regular	8	16	40	80	200	400
Pilots, alternate	8	16	40	80	180	350
Meteorologist	1	1	1	1	2	3
Radio operator & meteor. clerk	7	7	8	12	16	23
Field mechanics	8	12	19	35	72	131
Field mechanic's helpers	11	15	24	48	131	275
Clerks	4	4	11	15	31	57
Messengers	—	—	8	15	18	22
Groundsmen	—	3	7	11	15	15
Building maintenance men	—	—	4	8	12	19
Watchmen	14	14	16	19	28	28
Emergency field groundsmen	2	3	5	30	61	123
Total employees in Dept.	70	109	205	380	800	1495

* Estimates approximate.

required. This can be worked out exactly for all cases while the field force can be closely estimated for small scale and roughly estimated for large scale operations. The system in question was considered as consisting of four divisions and pilots estimated as flying one way on a division each day, returning over the same division the following day. Rest periods were liberally allowed for pilots and, in all, it was estimated that each pilot would average four flying days per week or about 136 days per year allowing for vacation. On this basis the pilots

would average about four hours in the air on each day on which assigned to fly.

Two classes of pilots, regulars and alternates, were assumed, the former being scheduled for trips while the latter took their places in emergencies or when the regular pilots were on leave of absence. Field mechanics and helpers were estimated on the basis of two men servicing three airplanes per day. This means that these men would fill the tanks, start engines and make such minor adjustments as might be necessary. Where less than three airplanes left any field daily a minimum of two men was provided and, in all cases, the total number of field men was divided between mechanics and helpers.

Duties of Field Men

In large scale operations these men would do no other work than servicing of airplanes, but in small-scale operations there would be a certain amount of miscellaneous work to be done at fields. On this account the numbers of men assigned were increased above the regular allowance where necessary. In the large-scale estimates no allowance was made for increased efficiency, so they err on the liberal side.

The Maintenance Department Employees Estimates, Table 2, are based upon detailed estimates of the labor required in maintenance of airplanes and engines as developed in practical experience by the U. S. Air Mail and other operators.

Complete studies were made covering the number of overhauls of engines and overhauls and repairs of air-

planes and the man-hours of labor developed from these. The frequency with which airplanes and engines were passed through the shops was determined from the experience of the Air Mail and other operators. As the labor involved in this work can be estimated with good accuracy, the numbers of employees for small-scale operations should again be very close to that necessary with a reasonably efficient organization. Very little allowance is made for increased efficiency due to greater volume of work in the large-scale operations so the general tendency of the table in such cases should be to err on the high side.

The Business Organization

The local offices or "Business" Organization, Table 3, represents that part of the whole airline personnel which is engaged in the work of obtaining business, handling traffic, collecting and delivering shipments and other work of this kind. A large part of what might be called "retail" collection and delivery work would be taken care of by the regular express companies, the post office and similar organizations. The airline organization, therefore, was provided only in sufficient force to handle the larger shipments and to carry the collective shipments to and from the express offices, post offices, etc.

Based upon the known capacity of the types of airplanes provided, this handling organization can be worked out

Table 2—Maintenance Department Employees

Title or class	Airplanes each way per day					
	1	2	5	10*	25*	50*
Mechanics	8	11	30	53	100	170
Mechanics' helpers	9	18	42	80	192	391
Messengers	—	—	1	1	2	3
Cleaners	1	1	1	2	4	6
Timekeepers	1	1	1	1	2	2
Bookkeepers & cost clerks	—	—	—	1	1	2
Chauffeurs	1	1	2	3	5	7
Millwrights	—	1	1	2	2	4
Electricians & plumbers	—	—	1	1	2	3
Inspectors	1	1	1	2	4	8
Stock clerks	1	1	2	2	3	4
Foremen	1	2	3	4	6	8
Shop superintendent	1	1	1	1	1	1
Clerks	1	1	2	2	3	6
Test pilots	1	1	1	2	4	8
Test field mechanics	1	1	1	2	4	8
Test field mechanics' helpers	1	1	1	2	4	8
Stenographers & typists	1	1	1	2	2	3
Total employees in Dept.	29	46	93	163	341	642

*Estimates approximate

Table 3—Local Offices and Business Department Employees

Title or class	Airplanes each way per day					
	1	2	5	10*	25*	50*
Local agent	7	7	7	7	7	7
Asst. local agent	—	7	10	14	14	14
Publicity men & assistants	1	2	5	7	10	10
Salesmen on salary	—	—	7	10	20	30
Clerks	8	11	22	35	70	110
Stenographers & typists	8	11	22	35	70	110
Chauffeurs & guards	14	21	30	50	95	165
Porters	—	4	12	24	60	120
Total employees in Dept.	38	63	115	182	346	566

*Estimates approximate

Table 4—Executives and General Office Employees

Title or class	Airplanes each way per day					
	1	2	5	10*	25*	50*
Executive head (active)	1	1	1	1	1	1
Executive head's secretary	1	—	1	1	1	1
Executive head's stenographers	—	—	1	1	2	2
Counsel (retained)	—	(not co mpany	emply	vee)	—	—
Consulting Engineer (retained)	—	(not co mpany	emply	vee)	—	—
Chief Engineer	—	1	1	1	1	1
General Manager	—	1	1	1	1	1
Engineers & draftsmen	—	2	1	4	6	8
General Manager's secretary	1	1	1	1	1	1
General Manager's stenographers	—	—	1	1	2	2
Operating Manager	—	1	1	1	1	1
Operating Manager's stenographer	—	1	1	1	1	1
Maintenance Manager	(Oper. acts as)	Mgr.	1	1	1	1
Maintenance Manager's stenographer	—	—	—	1	1	1
Local Agencies Manager	1	1	1	1	1	1
Asst. Local Agencies Manager	—	—	1	2	2	3
Local Agencies Manager's stenographer	1	1	1	2	2	3
Treasurer (active)	1	1	1	1	1	1
Treasurer's secretary	—	1	1	1	1	1
Treasurer's stenographer	—	—	—	1	1	1
Auditor	1	1	1	1	1	1
Asst. Auditor	—	1	1	2	3	3
Auditor's stenographers	1	2	3	4	6	8
Auditor's clerks	1	2	3	4	6	8
Paymaster	1	1	1	1	1	1
Paymaster's clerks	—	1	2	3	4	5
Adjustment Manager	1	1	1	1	1	1
Asst. Adjustment Manager	—	1	1	2	2	3
Adjustment Manager's stenographers	1	2	3	4	4	5
Timekeeper	1	1	1	1	1	1
Timekeeper's clerks	1	1	2	2	3	4
Purchasing Agent	1	1	1	1	1	1
Asst. Purchasing Agent	—	—	1	2	2	3
Purchasing Agent's clerks	—	1	1	2	2	2
Purchasing Agent's stenographers	1	1	2	1	3	4
Cashier	1	1	1	1	1	1
Cashier's clerks, etc.	—	—	1	1	2	2
Stenographers, unassigned	2	3	4	6	8	10
Office boys	2	2	3	4	6	8
Total employees in Dept.	25	38	53	68	86	104
Total employees for all Departments.	162	256	466	793	1573	2807

*Estimates approximate

well within reason, although it cannot be regarded as absolutely accurate. The question of other employees of this department is subject to some conjecture, but they form a relatively small proportion of the total employees of the airline, and this should make any errors of minor consequence.

As regards the salesmen engaged in business promotion, no allowance was made for salaries in the small-scale estimates, assuming that they would work on a commission basis.

During the introductory period when the line is being established these men might possibly be paid on a part salary and part commission basis, the salary being charged to the introductory cost account during this period.

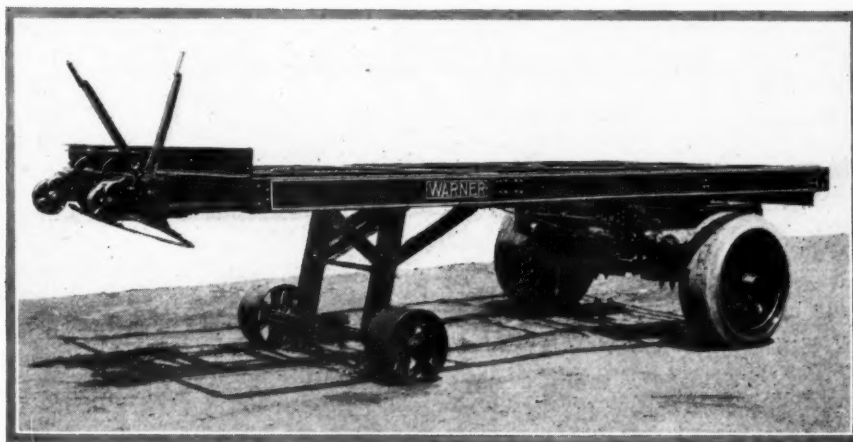
The Executive Office List, Table 4, includes the officials of the company, department heads and the employees of the executive office. This list is subject to considerable variation, depending upon the efficiency of the organization and other conditions. As given in the table, it applies only to the route and conditions previously mentioned and with a reasonably efficient organization. It might be

varied either up or down by departure from any of these conditions.

Even for small-scale operations it is necessary to make some assumptions in compiling this list, but it can be regarded as reasonably correct as given. As small-scale operations do not justify the creating of an Engineering Department, such is not provided for in the case of operation of one airplane each way per day. By making this elimination an important savings is effected.

In a case of this kind it becomes better business to turn over the development and engineering work to the manufacturers of airplanes, engines and equipment and to outside consulting engineers. Naturally, as the scale of operations is increased this condition changes and a gradually increasing Engineering Department is provided for. Similarly, it will be noted some of the other divisions shown in Fig. 1 have not been brought into existence in the smallest scale of operations, and the operating manager is also called upon to act as maintenance manager. The estimated total numbers of employees for the entire system are given at the bottom of Table 4.

Improved Fifth Wheel Distributes Trailer Pay Load



Automatic detachable trailer showing landing wheels, fifth wheel circle and operating levers

THE WARNER MANUFACTURING CO. of Beloit, Wis., has made an important improvement in its line of automatic detachable trailers by the design of a new fifth wheel coupling which permits considerable variation in distributing the weight of the pay load over all six wheels of the attached truck and trailer so that larger loads may be carried in states where there is restriction on allowable loads per axle.

The keypoint in the construction is that the fifth wheel is not stationary on the trailer but moves in a track of its own. In its attached position it may be as much as 24 in. to the rear (on the trailer) of its detached position. This throws the trailer farther forward on the tractor and so puts a larger share of the burden on the driving wheels of the truck than has before been possible with automatic trailers. The amount of movement possible is planned to meet the particular requirements of the load to be carried.

The fifth wheel connects with the kingpin mounted on the tractor by a set of jaws which run in a track and lock around the kingpin. To pick up the trailer the

driver backs up and makes connection between the kingpin and the fifth wheel jaws. As he continues to back, the landing wheels are raised automatically, the jaws are locked around the kingpins, the automatic air brakes with which the trailer are equipped are released and he may drive forward at once.

To disconnect the trailer the driver pulls the outside lever located within reach from the running board, thereby releasing the fifth wheel mechanism and locking the trailer brakes. As the tractor is driven forward the fifth wheel slides to its forward point of travel on the trailer, the jaws spring apart, releasing the kingpin, and the trailer drops on its supporting legs, which coordinate automatically with the disconnecting process.

The trailer load is carried on a flat steel circle forming the lower part of the fifth wheel which rides on a flat steel plate on the truck. The supporting area is approximately 180 sq. in. The tractor part of the fifth wheel mechanism can be fitted to any type vehicle without frame alteration.

Coordinated Research Playing Big Part in Highway Development

States, universities, municipalities, counties and industries all aiding in movement to improve methods of road construction. Huge savings effected. Tests to date total 479.

By A. N. Johnson*

Chairman, Highway Board, National Research Council

SELDOM has there been experienced in so short a time such a great economic development as we have witnessed in highway transportation. This development has brought into existence thousands of miles of improved highways and millions of vehicles, totaling an annual expenditure of vast sums.

For the construction of roads alone, we are spending over a billion dollars a year and several more billions for the manufacture, upkeep and operation of the vehicles. It is not hard to conceive that this should raise a wide variety of problems that call for a great diversity of talent in their study and solution, problems for the economist and the engineer, the physicist and the politician.

The State Highway Departments found themselves suddenly called upon to expend millions, where thousands had sufficed. Heavy loads at high speeds had to be carried. Experimental work was undertaken.

In the effort to help to coordinate not only investigations that had been undertaken, but to outline the field that was opening for research in the development of highway transportation, the Highway Research Board of the National Research Council was organized, of which Charles M. Upham is director. Through its effort, there has been fostered increasing active participation by the state universities, where, naturally, much of the work of this character could best be done, provided there was some way to find out what should be done and who could do it.

It is not easy to point, at this early date, specifically to the economic saving that may have been so far effected by these highway researches.

A carefully compiled list of these projects has been made recently by the Highway Research Board, and they

are found to total in number 479, being divided as follows:

State Highway Investigations	205
University Investigations	184
Municipal, County, Industrial	90

It is a part of the work of the Highway Research Board to put this mass of information, resulting from these researches, in such form as will impress the public with the material value and necessity of work of this character in the highway field. The fact that, at present, we do not know the exact money value that can be named as the result of these particular researches is not particularly significant. But what is of significance is that there have been programs of research inaugurated in many states that cover a wide field.

Foremost among these are the investigations that have been carried on by the U. S. Bureau of Public Roads, many of which have been in cooperation with the State Highway Departments. The Bureau's investigations into sub-grade conditions, that may be considered as fundamental in the design of our highways, have gone already far enough to point out clearly certain forms of construction that should be followed, and that others on which much had been expended in the past were of small value.

A very interesting economic study has been made

in Wisconsin under the direction of the State Highway Department. It has been learned that tourists in Wisconsin spend yearly, within the State, 80 million dollars. The profit on this amount of business is much more than the State spends on its road system.

As illustrative of the extent to which some of the States have undertaken highway research problems, may be cited what is known as the Bates Test Road in Illinois. This project was carried out by the State Highway Department of Illinois, of which Clifford Older was chief engineer, in cooperation with the U. S. Bureau of Public Roads, of which T. H. MacDonald is chief. The State expended on

Do Highways Pay for Themselves?

THAT question has been answered many times, nearly always in the affirmative. Practically every improved road that is constructed increases the wealth of the community through which it runs.

Mr. Johnson cites an example in Wisconsin. He says:

"A very interesting economic study has been made in Wisconsin under the direction of the State Highway Department. It has been learned that tourists in Wisconsin spend yearly, within the State, 80 million dollars. The profit on this amount of business is much more than the State spends on its road system."

*From a paper presented at the meeting of the North Carolina Section of the American Society of Civil Engineers, Asheville, N. C., Aug. 11.

this experiment \$250,000, a large sum for building purely a test structure. One outcome of these tests was a modification of the cross section for concrete roads in the State, lessening the amount of concrete used, while strengthening the road slabs to carry traffic; a saving on the road program, then actually in hand in Illinois, of over two million dollars. This excellent and remarkable piece of highway research work is fully described by Mr. Older in the Proceedings of the A. S. C. E. for February, 1924, page 175.

The extensive series of tests undertaken at Pittsburg, California, is another illustration of the high grade scientific work that is being done in connection with highway research. This investigation was a cooperative effort between the State Highway Commission of California, of which A. B. Fletcher was State Highway Engineer, and the U. S. Bureau of Public Roads.

How Test Was Conducted

For this investigation there was constructed a track, with parallel sides and circular ends of 75 feet radius, a total distance of a little over 1136 feet, on which was concentrated in 89 days over 7 1/3 million tons of traffic. This amount of traffic may be better visualized by the fact that a road with an average distribution of truck traffic of 1000 trucks per day would require something over 12 years to carry the tonnage applied on the Pittsburg Test Road.

The road itself was of concrete construction of various types, special care being taken to install apparatus that made it possible to observe the effect of traffic upon the road slab. It is impossible in this running summary to do more than to refer those interested to the excellent report of this research issued by the Department of Public Works of California, under the title "Report of Highway Research at Pittsburg, California, 1921-1922." It is significant that many of the phenomena, particularly the curling or vertical movement of the road slab during a change in temperature of the top and bottom of the slabs, noted in the Pittsburg Road Test, are also recorded in the observations made on the Bates Road Test and those made at Arlington, Va., by the Bureau of Public Roads.

A Road for Light Traffic

In North Carolina, notable work has been done under the guidance of C. M. Upham, Chief Engineer of the State Highway Commission. After a careful study of what had been done elsewhere, and through building sections of road experimental in character, there has finally been developed a form of road construction suitable for a considerable amount of light traffic, which has a great potential value in the development of many of the poorer and sparsely settled sections of the State. This has been brought about through the development of an inexpensive type of road surface, taking advantage of the sandy character of the soil which prevails in much of the region traversed by these roads.

Investigation and research are needed to study how best to use the highways; what are the proper regulations, first, that we may safeguard life and limb, and second, that we may expedite the flow of traffic over the highways? There is no more serious problem before us than that of highway safety. Our highway traffic accidents have reached the appalling yearly total of over 23,000 lives and more than 600,000 persons maimed and injured. We almost ask ourselves if we have not created a Frankenstein.

Probably no more perplexing problem is presented than that of traffic congestion today. We provide radial or arterial roads which concentrate such a large flow of traffic at given points, as of itself to cause stagnation

through these centers. We may bring traffic readily and rapidly to the confines of a city, only to discover that there is not traffic area sufficient to take care of the volume that has been so attracted. Eventually, this must cause so great inconvenience as to reduce the amount of traffic. The problem before us is to determine, if possible, what may be the ultimate flow of this highway traffic, and to provisions that should be made for its accommodation.

Readjustment of Population

What may very likely happen is the essential readjustment of the distribution of population tending to disperse it rather than continue concentration, as has been the case for so many years, as witnessed by the upbuilding of our great cities.

We have pressing problems in highway transportation that call for cooperation of every available agency. Our universities, with their splendid equipment of men and laboratories, can probably be used to greater advantage. A very important part of the work of the Highway Research Board will be to arouse the interest of the various agencies in these problems.

The Highway Research Board also has a number of researches under way which are financed by industrial concerns and there is little doubt but that the program of researches so financed will soon be much enlarged.

This may be expected because the opportunity presented for this character of cooperation, through the organization of the Highway Research Board of the National Research Council, furnishes unique auspices under which such work may be carried on that is scientific in character and impartial in its findings.

Rail and Truck Lines Coordinated

SUCCESSFUL operation throughout Germany of a combined railway and motor car service which has eliminated unnecessary competition and provided better and more profitable service is reported to the Automotive Division of the U. S. Department of Commerce in consular advices.

The report of the Deutsche Reichsbahn Gesellschaft German State Railway and the Kraftverkehr Deutschland GmbH German Motor Car Services during the nine months ended December, 1924, shows that in the Berlin Express Goods Service 57,856 metric tons were handled, producing a revenue of 732,184.16 marks, of which the motor car company received 90 per cent, the remainder being retained by the railway association.

A further important task of the motor car service is the establishment of short distance lines in districts where no railway facilities exist. The administration of the combined railway and motor car service has also entered into negotiation with the association of narrow gage and private railways and with the association of German street railways, in order to eliminate unnecessary competition and effect profitable combinations.

IF there is anyone who still doubts the advantages of good roads he should read the booklet, "The Relation of Improved Highways to Home Life," issued by the Highway Education Board of Washington, D. C. This contains the essays winning state honors in the competition for the Harvey S. Firestone University Scholarship. None of the essays is over 700 words long and all have been written by high school students, but they contain some very convincing arguments on the value of good roads to home life and to the general welfare of the public.

Bullet-Proof Metal Adapted for Car Bodies

"Bovite" embodies new theory of resistance to impact and vibration.

Can be shaped to any standard body design. Protects in collisions.

A NEW type of metal, embodying a new theory and practice of resistance to impact and vibration, has been adapted for automobile body construction by the American Armor Corporation, New York. The metal is called Bovite. An outstanding feature of bodies designed from this material is that the protection is invisible; that is, a car armored with Bovite is identical in appearance with the original car, whatever its make may be. Bovite is simply used in place of the ordinary body material and follows the lines of the standard body. Bovite metal has already gained wide and effective use in the American Armor Corporation's bullet-proof vest.

Bovite is the invention of J. J. de Boves, metallurgist, of the American Armor Corporation. It is an alloy metal developed to meet the requirements of the inventor's theory of "flexible resistance and vibratory leaks." This theory has been first applied to the resistance of armor to a bullet, but the same principles are adaptable to resistance against other shock and vibration, such as collision.

The de Boves Theory

The de Boves theory is, essentially, that if the vibrations due to an impact can be conducted away rapidly enough, no damage will be done to the material meeting the impact. In the case of a bullet, the theory holds that the bullet in itself is an inert mass, and that it is "riding" on a moving region of energy or tension in the ether. Part of this energy is in front of the bullet and is dispersed before the impact. The bullet flattens out and acts as a sort of protective armor against the energy behind it. The energy of the impact is immediately spread over a large area instead of an area equal to that of the bullet. The metal is thus able to withstand the impact without rupture or other serious structural disturbance due to molecular disarrangement such as sudden "grain growth" due to saturation. The Bovite metal, by its ability readily to absorb and conduct vibratory ripples, provides an area of partial saturation (of energy) of about 12 sq. in. instead of an area of total saturation of about 9/16 sq. in. after the impact of a .45 caliber army Colt bullet.

Low Carbon, Ferrous Metal

To provide this high conductivity a new comparatively low carbon ferrous metal was developed in which molybdenum is used. The metal is cold finished, a mechanical treatment being substituted for the usual heat treatment. The treatment of the steel also includes a new process for artificially and rapidly inducing "aging."

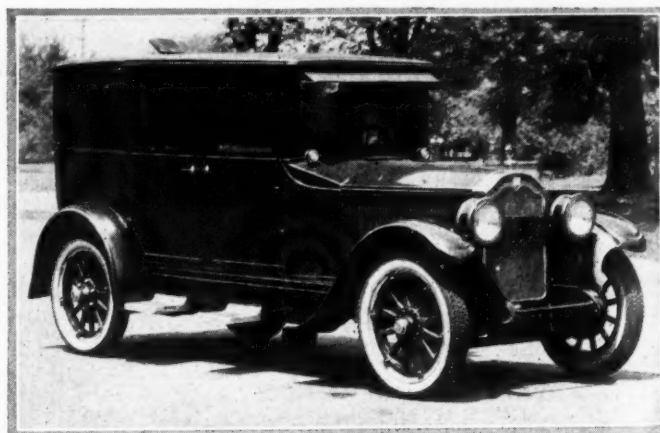
The artificial aging is induced by the use of boron, which tends to increase the "freezing range" and thus to eliminate substantial inequalities in structure due to thermal stresses. The subsequent mechanical treatment preserves the molecular balance thus achieved and utilizes this balance to produce increased and uniform conductivity.

The result is a metal sheet in which the core differs in density from the outer strata—and the high tensile

strength and elastic limit as in heat-treated steel are accompanied by unusual ductility. These sheets are shaped by hot and cold compression (under special precautions necessary for the preservation of the conductivity), thus differing radically from the ordinary unworkable rigid armor plate. Bovite may be sheared and punched with the usual equipment but it must not be drilled. For example, a plate 1/16 in. thick, such as is used for automobile bodies, which stops a .45 caliber bullet without fracture, is soft enough to permit of punching with 1/8-in. hard punch and can be bent over 1/8-in. radius by hand. Such a plate weighs about 2 1/2 pounds per sq. ft.

Weight Within Limitations

The weight of a Bovite armored car is in every case well within chassis limitations. In cases where the Buick,



A Buick sedan with Bovite bullet-proof body, bullet-proof windows and puncture-proof tires

Studebaker, Dodge and Ford cars have been completely armored, fitted with bullet-proof glass windows (standard for all Bovite bodies), and fully provided with suitable emplacements for guns, tear-gas bombs, first-aid equipment, bullet-proof vests, pulmotor, fire extinguisher, siren horn, portable lights, etc., the weight was but slightly more than the standard unarmored sedan. The metal has a surface which easily takes any type of automobile finish.

Until the metal and its properties are better known to body builders and the industry generally, the company prefers to supply body sections, fabricated ready for assembly, for any make of car, truck, delivery wagon, bus, cab, etc. It will also produce completed bodies.

Mr. de Boves believes that the properties of the metal may be utilized in other parts of the automobile where there is shock and vibration, such as in springs, etc. Bovite is also being tested by airplane manufacturers for protecting the fuselage and the pilot.

One of the practical economic results obtained from the use of the armored sedan is a reduction of insurance premiums resulting from the increased protection afforded.